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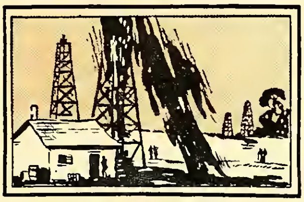
Louisiana Conservation REVIEW



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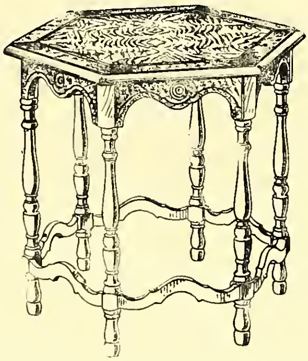

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Louisiana
CONSERVATION REVIEW

Published by the
DEPARTMENT OF CONSERVATION
ROB'T S. MAESTRI, Commissioner

VOL. I. NEW ORLEANS, LA., JANUARY, 1931 NO. 4

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American Salt-dome Possibilities*

By R. A. STEINMAYER
Professor of Geology, Tulane University of Louisiana

TRULY, the vastness, importance, and variability of the earth's salt supply is beyond human comprehension. There is, without question, no other mineral so abundant and yet so vitally necessary to the daily needs of life.

It may be said that much of the history of human civilization has been written in salt. A great deal of the record, it is true, as written in the salt, cannot be deciphered or interpreted, and much more has been lost because of the soluble character of the material. Was it merely a coincidence that they found the record of the first human, the *Pithecanthropus erectus*, near the salt depositing mud volcanoes of Java, the Mousterians and Cro-Magnon races with the volcanic salt deposits of the Pyrenees of France, the potshreds and artifacts of the American aborigines on the salt domes? Herodotus states that priests carried pieces of salt in palm baskets as presents to the Kings of Egypt. He also describes to us an ancient caravan route in the Sahara, about 2,350 years ago, which connected salt oases. The salt mines of Lorraine date back to the Roman Empire. Tacitus narrates of the furious wars between Germanic tribes for the possession of salt springs. In Galicia, salt concessions were made in the year 1044 to a Benedictine Monastery, at Tynica, by Kashmir I. For centuries the misery of the exiles of Russia has been written in the salt mines of Siberia. On April 17, 1863, the mining of salt at Avery Island, Louisiana, was temporarily brought to a close by the destruction of the works by Federal forces under General Banks, and in India, today, new chapters are being added to the salt book of time.

Geographically, salt and salt bearing deposits of both the bedded and structural types have been found to encircle the earth and occur in all latitudes except the polar circles. To date, however, those peculiar structural forms termed "salt domes" are known to occur only on the North American continent. These unique salt masses are now found restricted to that region which formed a part of the paleogeographical Eocene gulf border of the continent termed the "Mississippi Embayment Area" now lying within the coastal plain of the Gulf of Mexico. One group of domes situated in the Louisiana-Texas province (Fig. 1 on page 16) and the other in the Isthmus of Tehuantepec, Mexico.

The more extensive Louisiana-Texas province may be subdivided into two sub-provinces. The one including the coastal group of domes that skirt the Gulf of Mexico, extending inland a distance of approximately 70 miles, from just east of the Mississippi River to a short distance below the Rio Grande River. The other, the interior group, on or near the flanks of the Sabine Uplift in Louisiana and Texas, and separated from the former by a narrow strip apparently containing no salt domes. The first named group occurring on the flat coastal prairies of the Gulf, and the latter on the subdued hill lands approximately 100 miles further inland. We have every reason to believe that the present limits of the Louisiana-Texas province have been only apparently defined and it is more than possible that the area may be extended landward as well as out into the Gulf of Mexico. Up until a few years ago geologists were inclined to agree that the eastern boundary of the province was bounded by the Mississippi River. That this was not the case, however, was proven by drilling into a salt dome (Sorrento) recently east of the river. Furthermore, geophysical explorations during the last two years have indicated the presence of salt domes in the Gulf of Mexico.

Stratigraphically the rocks of every major and minor division of geological time from the Pre-Cambrian to the Recent are known to contain saline beds.

At present the exact age of the salt in the Louisiana-Texas domes has not been determined due to the character and probable flowage of the material. It has been determined, however, that the majority of the domes (implying dome structures and not the salt cores) are comparatively recent in origin (geologically speaking) extending back, at the most, to Lower Cretaceous times. Their age determination having been made from the overlying and adjacent rocks. This stratigraphic determination, however, is not necessarily a true criteria and may not even be a guide to the age of the salt itself, inasmuch as we postulate under the more acceptable and the more recent tectonic theory that these intruded plugs are merely the pushed up parts of an underlying deep-seated deposit. Therefore the salt, itself must be older than the oldest known rocks involved in the formation of the dome. At the present time, at least, it may be said that the age of the salt is indeterminate.

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*A paper read at the meeting of the American Institute of Chemical Engineers, New Orleans, Louisiana, December 8-10, 1930.

Salt domes consist essentially of deep-seated sub-circular core-like masses of salt which have been intruded into the overlying beds and mantle rock, normally, bowing them upward into dome or mound-shaped, usually sub-surface, structures of the somewhat symmetrical specialized types known as quaquaversal folds (Fig. 2). They are usually circular or elliptical in plan (Fig. 3), although at times irregular in outline, and their diameter may vary from a fractional part to more than two miles.

The thickness of the salt cores themselves has never been determined but it is definitely known that they may be measured in terms of thousand if not tens of thousands of feet.

Coastal salt domes may be placed into three classes—shallow, intermediate, and deep-seated—according to the depths from the ground surface to the tops of the domes.

The "Five Islands" of Louisiana, for example, are comparatively shallow domes and the salt may appear within a few feet to a few hundred feet below the ground surface. Others of the intermediate class are approximately 1,000 to 2,500 feet below the surface. While recent developments and explorations have revealed other domes having a depth of 2,500 to more than 5,000 feet.

Dome structure in the superposed sedimentary strata does not necessarily imply that either the top of the underlying salt core or the relief of the overlying surface material must always have an elevated irregular conic or circular profile.

Although intensive investigations of the tops of the salt cones during the past few years have revealed that such modified profiles predominate on the better known domes, as is illustrated in the accompanying type top profile diagram (Fig. 4) others, as the modified rectangular concave and overturned profiles may also occur.

Geologists are often asked this question, "Do these intruded masses of great areal extent and indetermined thickness affect the topography of the overlying and adjacent area?" This question, simple as it first appears, can neither be answered definitely in the affirmative nor in the negative. The geologist, at best either way, considering all depth classes as a whole, could give but an evasive answer jumbled with elusive "ifs."

Many of the shallow coastal domes it is true, as one would logically surmise, affect the overlying relief and drainage. This may also be possible under favorable conditions although highly improbable for the intermediate class and impossible in the deep-seated coastal class covered, as they are, with a thick mantle of loose incoherent sediments. Then too, where surface expression does occur the relief of the area may vary with each group or individual dome from the flat featureless to the depressed basin-like, or to the pronounced mound-like topography (Figs. 3a-3b).

In southwestern Louisiana extending along a line bearing S. 49° E. from a place 10 miles west of New Iberia to the mouth of the Atchafalaya River are five distinct surface mounds known as the "Five Islands of Louisiana," comprising Jefferson's Island, Avery's Island, Weeks' Island, Cote Blanche, and Belle Isle, protruding above the neighboring marshes to a maximum of over 150 feet. The mounds are literally high islands of sediments surrounded by swampy lowlands near Gulf level. Incidentally, they also mark the highest elevations in the Gulf coastal plains of Louisiana and Texas. Nearby, however, at Vinton and Sulphur, Louisiana, the converse occurs instead of having high mounds overlying the salt masses, the surficial topography is characterized by depressed areas filled with water. Consequently lakes or ponds overly the salt. In a few instances the outlines of the domes are perimetered by ridges of higher ground seldom, however, exceeding more than 20 feet.

Normally in adjacent undisturbed areas the surface streams have dendritic, or tree-like, drainage patterns while adjacent to the surface dome relief the drainage is generally of the radial types as illustrated in the photographic reproduction of the model of Avery's Island (Fig. 6).

The component parts of the North American salt dome structure consist of a solid core, with or without cap rock, and the overlying or adjacent disturbed country rock.

The core is composed essentially of Halite, NaCl, which may be 99.4 per cent pure, although streaks of anhydrite occur often as impurities.

The salt may or may not be topped with a cap, from a few feet to several hundred feet in thickness, consisting of various minerals or combination of minerals such as limestone,

(Continued on page 16)

Greater Output of Road Oil Shown In Review of Refineries' Production

Item Is Found to Be Principal Miscellaneous Product; Refinery Gas and Vaseline Are Next in Importance With Special Naphthas Following

ROAD oil was the most important item among the miscellaneous products of petroleum refineries last year, according to a statement October 21 by the Bureau of Mines, Department of Commerce.

Road oil made up 3,281,000 barrels of the 9,924,000 output of miscellaneous finished products in 1929. A total of 2,972,000 barrels of road oil and 9,402,000 barrels of miscellaneous products was reported in the previous year.

Petrolatum is another important minor product of petroleum, it was pointed out. It is used in making vaselines and as a base for salves and ointments. The statement follows in full text:

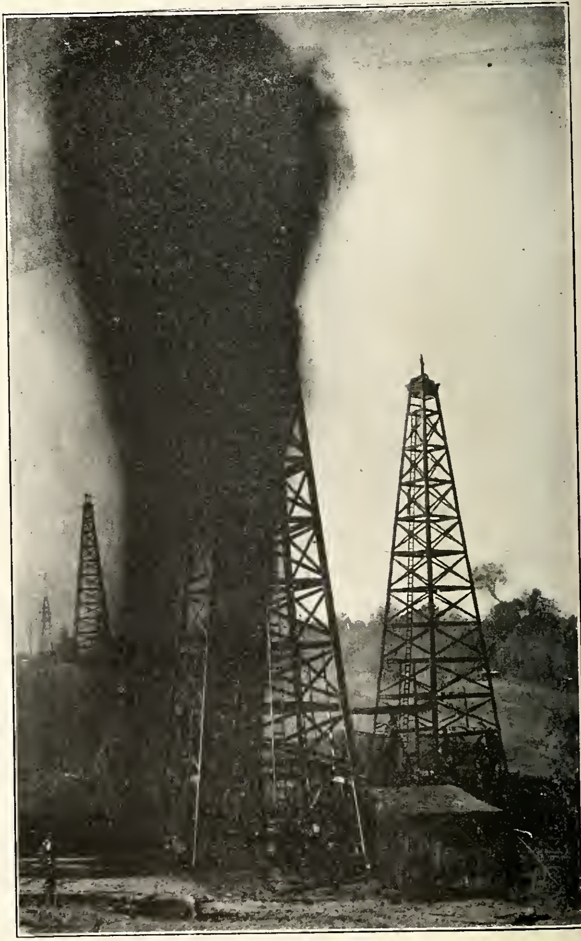
The total production of "other finished products" at petroleum refineries, including all miscellaneous products other than gasoline, kerosene, gas oil and fuel oil, lubricants, wax, coke, and asphalt, amounted in 1929 to 9.924,000 barrels as compared with 9,402,000 barrels in 1928.

The total production of the miscellaneous products is reported monthly, but the Bureau has for the past two years made an annual canvass to determine the identity and quantitative importance of the various products included in this group.

REFINERY GAS IS NEXT ITEM IN IMPORTANCE

As was the case in 1928, road oil was the most important item reported under "Miscellaneous" in 1929. The production of road oil for the latter year amounted to 3,281,000 barrels as compared with 2,972,000 barrels in 1928. These figures do not include 1,000,000 barrels or more of intermediate products between road oil and light asphalt fluxes and which are classed as road oil in the Bureau's annual chapter, "Asphalt and Related Bitumens," but in refinery statistics are included under asphalt. The most important road-oil producing areas were the states of Indiana and Illinois, California, and the east coast district.

The second most important item was refinery gas, the production of which on the basis of equivalent oil, amounted to 1,884,000 barrels in 1929. A portion of this refinery gas was sold, either directly or through intermediate distributors, to industrial plants or used in the enrichment of manufactured gas, but the larger portion was burned as fuel under boilers and stills.



Blossom Sand Oil Well at 2,095 feet in the Homer Field, Claiborne Parish, flowing 30,000 barrels a day.

INTERSTATE NATURAL GAS COMPANY'S BOOSTER PLANT AT CARGAS, LA.
This station builds up the necessary pressure to carry Monroe gas to Baton Rouge and points south.

The production of absorption oils at refineries in 1929 amounted to 329,000 barrels as compared with 269,000 barrels in 1928, an increase of 22 per cent. Absorption oils are used by the natural gasoline industry as an integral part of the absorption process and the material increase in output in 1929 undoubtedly had some relation to the substantial gain in total capacity of the natural gasoline plants during that year. The most important absorption-oil producing areas were California, Oklahoma and Texas. These were also the leading natural-gasoline producing States.

Petrolatum is one of the most important of the minor products of petroleum. It is used in the manufacture of vaselines and as a base for various salves and ointments. The production of petrolatum at petroleum refineries in 1929 amounted to 251,000 barrels as compared with 312,000 barrels reported in 1928. These figures are perhaps not a true indication of the production trend in 1929 since large quantities of petrolatum are produced at compounding plants the operations of which are not covered by the Bureau. Petrolatum is a product of paraffin-base crudes, hence it is natural that over half of the output of this product is made in the Appalachian district. The east coast and Indiana-Illinois districts were the only other areas which produced material amounts of petroleum.

INCREASED OUTPUT OF SPECIAL NAPHTHAS

Another important item under the miscellaneous products was special naphtha. These include two main classes—painters' naphtha, or, as it is variously called, mineral spirits, turpentine substitute and resin solvent, and cleaners' naphtha, or, as it is often called, Stoddard solvent. There is actually considerable difference between the chemical composition of these two classes but, since some companies regard them as one product, they are combined in the table of this report. There was undoubtedly a material increase in the number of cleaning and dyeing establishments in 1929, which is substantiated by the increase in output reported to the Bureau.

The remainder of the total for miscellaneous products included a great variety of products, some of which are manufactured by only one or two refineries. One of the most important of these is medicinal oils. Medicinal oils may be segregated into two main classes—the heavy product allied to petroleum, such as salves, creams and ointments, and the lighter product used both internally and externally.

Another product reported was insecticides or pest destroyer. This is a fairly liquid material usually applied by spraying.

Another class of products classified as miscellaneous by refiners was what is variously called pitches, cable coatings, or sealing compounds.

(Continued on page 29)

Louisiana Fish Industry Thrives Under Conservation Laws

By J. E. Ray

DURING the past twenty years I have been actively engaged in producing, buying and selling fish in the State of Louisiana, and when I look back over these twenty years I feel proud that I have participated in the wonderful advancement that has taken place in this line of business. In my opinion the two outstanding reasons for this advancement are:

CONSERVATION AND CO-OPERATION

CONSERVATION

I mention conservation first, for without the assistance of the Department of Conservation enacting the proper laws and causing them to be enforced there would not be sufficient fish in the State of Louisiana today to enable the thousands that are engaged in the industry to earn a livelihood.

While the fish business has made progress slowly, the Department of Conservation has grown by leaps and bounds. To make a comparison of the Department of Conservation twenty years ago and the efficient organization of today I will relate an incident that occurred shortly after the first commissioners of conservation were appointed. There were three commissioners, one of these gentlemen called at my place of business one day and asked permission to make a trip on one of my fish buying boats for the purpose of collecting sufficient license to pay himself several months back salary that was due him. It is my recollection that he talked three fishermen out of one dollar each. No attempt was made at that time to conserve the natural resources of the State.

The first real effort to organize a conservation commission and enforce the laws was made by Mr. M. L. Alexander. He was a true conservationist and the State of Louisiana, as well as everyone dealing in any of the natural resources of the State profited greatly from his services.

Today under the able direction of Mr. Robert S. Maestri, Commissioner with Messrs. J. B. Dauenhauer, Jr., and J. W. Buie in charge of enforcement with sufficient assistance to properly patrol the entire State, there are very few violations of the Conservation laws, it being the policy of the Depratment of Conservation to work in harmony with those dealing in the natural resources of the State.

Dancing shrimp to remove shells on platform.

The Department of Conservation of Louisiana is today recognized as the most efficient Conservation Organization in the United States.

CO-OPERATION

Twenty years ago there was about half dozen fish dealers in the State. They spent I believe more of their time trying to do something that would in some way injure each other financially, than they spent trying to help themselves. Any statement that one would make to the other was just considered a Fish Story. Under such conditions the business could not progress.

Fish were being shipped in sacks without ice to the nearby markets. The shipments, of course would reach destination in such condition that they were not fit for human consumption. The first improvement in shipping conditions was the use of second-hand barrels, just any old dirty barrel, especially a used lime barrel, it was thought would answer the purpose and they could be purchased for a dime each. This second-hand barrel did not prove satisfactory for the reason that the big problems at that time were sales and distribution. We could not find any customers that would buy fish and be satisfied to receive them in an old dirty barrel.

During the year 1915, conditions were so bad that the few dealers were forced to begin telling each other a few facts about the problems of their business. We decided to all have a meeting and discuss matters pertaining to the business. The result of this meeting was the organizing of the Louisiana Fisheries Association.

Each member of this association agreed to use new containers for packing fish shipments and in every way possible so handle his fish that it would reach the markets in salable condition. New barrels were then used and the improvement was noticeable right from the start. Fish were usually sold by the retailers, out of the barrels in which they were received and the new barrel had a much better appearance than the old dirty ones. Sales increased and we soon had an outlet for a much larger quantity of fish.

The fish business is like most every other business, prices are regulated by supply and demand. The improvement made increased the demand and naturally the dealers paid higher prices to the fishermen, and each year found hundreds of new families added to those engaged in producing fish. Fish were being caught in such large quantities that it was necessary for the dealers to reach out to all the cities in the United States to market their product.

Statistics compiled by the Federal Bureau of Fisheries revealed the fact that the consumption of fish per captia was greater in New York City than any city in the United States. This large consumption of fish in New York City was caused by the vast foreign population. It is an established fact that foreigners eat about five times as much fish as Americans, and they do so for two reasons; first, fish are more wholesome and easier to digest than meat; second, fish are cheaper than meat.

After obtaining this information from the Bureau of Fisheries I made a trip to New York City and after two weeks investigation found that New York would use almost unlimited quantities of Louisiana fish if they could be delivered there in first class condition. During the time I was there I had my firm ship several barrels of Rough Buffalo that I might see the exact condition of these fish upon arrival. To my disgust they arrived in such condition that I paid about $15.00 per barrel express and $1.00 per barrel to have them hauled to the dump.

I was convinced however, that if the fish were properly handled by the dealers when first taken from the water and then re-iced as they should be by the Express Company, enroute, they could be delivered to New York in first class condition.

The fish industry is greatly indebted to the officials of the Express Company, especially Mr. E. C. Berry and Mr. S. R. Pickett, for assistance and co-operation in the proper handling and icing of fish shipments from all producing points to the distant cities.

The demand for Louisiana fish in New York developed from a few barrels by local express to several hundred refrigerator car loads each year, in fact this New York business has reached the point where sufficient quantities of Louisiana Buffalo are being shipped to this market that unless the dealers make some arrangement to only ship what the market can use to a good advantage they are going to find it unprofitable to ship to what should be our very best market.

Those directly interested in the fish industry appreciate the cooperation of the Department of Conservation. The present laws governing the catching and shipping of fish are real conservation measures and the manner in which these laws are enforced at present assures us that each year our supply of fish will be greatly increased.

Report of Division of Fisheries

By J. B. DAUENHAUER, JR., Director

I RESPECTFULLY submit the following report, giving a brief outline of the activities of the Division of Fisheries for the year ending December 1st, 1930.

During the above period, the fishing industry of Louisiana was greatly impaired by abnormal conditions resulting from the extreme drought throughout the country which lasted about four months. This, in a measure, affected the revenues of this Division derived from the sale of licenses and reduced considerably the volume of Fresh and Salt Water Fish caught during that time.

FRESH WATER FISH

Fresh Water Fish are divided into two classes, game and commercial fish. Game Fish are black bass, (known as green trout, white bass or barfish), yellow bass, crappie or white perch, and bream. The Department derives no revenue from these, as their sale is prohibited by law.

Fresh Water Commercial Fish are the Catfish, Buffalo, Gaspergou, Paddlefish or Spoonbill, Carp, as well as Bull-frogs and Turtles. The revenues derived by this Department from this source, by the sale of Fresh Water Fish licenses issued during 1929, amounted to $25,555.00, as compared with $27,140.00 in 1930, as follows:

	1929	1930
Hoop Nets	$ 6,985.00	$ 6,500.00
Seines	3,235.00	3,045.00
Trammel Nets	625.00	405.00
Gill Nets	305.00	310.00
Wholesale Dealers	10,000.00	10,800.00
Wholesale Dealers Agents	1 194.00	1,970.00
Retail Dealers	2,275.00	4,110.00
Miscellaneous	190.00	....
Total	$24,809.00	$27,140.00

Main Reservoir across Indian Creek, State Fish Hatchery, at Beechwood, near Alexandria, La.

The above figures, as you will note, do not include Angling Licenses, as these licenses are collected by the sheriffs of the various parishes throughout the State of Louisiana, and returns are made directly to the State Treasurer, and credited to the Department as part of their appropriation from the State Legislature. However, this revenue amounted to $12,857.00 for 1929. Returns from this source for 1930 will not be available until January, 1931.

The number of pounds and the value of the different species of marketable Fresh Water Commercial Fish taken from the waters of Louisiana for the first ten months of 1930, amount to:

	1929		1930	
	Lbs.	Amount	Lbs.	Amount
Catfish	3,087,947	$ 432,312.38	3,880,262	$ 543,236.68
Buffalo	4,124,447	577,422.58	4,338,372	607,172.08
Gaspergou	1,150,744	161,104.16	1,973 214	175,249.96
Spoonbill	84,315	11,804.10	92,846	12,998.44
Miscellaneous			93,507	13,090.98
Terrapin			68,305	41,040.00
Turtles			52,366	10 473.20
Fresh Water Shrimp			25,994	5,198.80
Frogs			1,028,583	257,145.75
Crayfish			291,151	29,115.10
Total	8,447,452	$1,182,643 22	9,871 386	$1,694,720.99

By "Miscellaneous" is meant such fish as Carps and Drums, the catch of which is negligible.

SALT WATER FISH

Salt Water Fish include Speckled Sea Trout, Redfish, Sheepshead, Flounders and Crabs. The only revenue derived from these are through the sale of licenses for Seines and Trammel Nets, as follows:

	1929	1930
Seines	$ 740.00	$ 540.00
Trammel Nets	1,080.00	810.00
Total	$1,820.00	$1,350.00

Salt Water Fish also include Shrimp, from which the Department derives revenues from licenses issued for Trawls, Seines and Freighters; license revenues are also collected from canners, packers, and dryers and others who pay a severance tax on all salt water shrimp taken from the waters of this State for drying or canning purposes, or for sale in their fresh state.

This severance tax is ten (10) cents per barrel of two hundred and ten (210) lbs. for canning purposes or use or sale of salt water shrimp in their fresh state, and thirty-five (35) cents per one hundred (100) lbs., when such shrimp are used for drying purposes. These taxes are collected monthly by the Department and are used for the purpose of carrying out the provisions of law enacted to protect and develop the shrimp industry of the State of Louisiana. From this source the Department received the following revenue during the first ten months of the year 1930. Below are given comparative figures for the years 1929-1930:

Licenses	1929	1930
Trawls	$14,860.00	$11,500.00
Seines	1,680.00	2,050.00
Freighters	1,335.00	925.00
Canning and Packing	700.00	575.00
Drying Platforms	180.00	615.00
Severance Tax on Green	20,084.40	18,306.00
Total	$40,659.40	$35,321.00

The total amount of revenue derived by the Department for the first ten months of 1930 from salt water fisheries amounted to $35,321.00, and in 1929, $40,659.40. This decrease in revenues from this source was due to two causes: First, the general depression in business throughout the country, which caused the Shrimp canneries and Drying Platforms in the State to carry over a surplus of stock from last year's catch, naturally curtailing the sale of licenses, and thereby affecting the catch to a great extent, as well as the revenues collected by the Department from this source and that of the severance tax; Secondly, weather conditions were very unfavorable to the Shrimp industry this season, due to the continual easterly winds preventing the trawl boats from going out into the Gulf beyond the three-mile limit.

The number of pounds and the value of the different species of marketable salt water fish taken from Louisiana waters for the above period amounted to:

Speckled Trout	174,164	Lbs.	$ 26,124.60
Red Fish	150,169	Lbs.	15,069.00
Sheepshead	75,589	Lbs.	8,314.79
Flounders	52,711	Lbs.	6,325.32
Common Salt Water Fish	50,000	Lbs.	5,000.00
Hard Shell Crabs	113,075	Doz.	28,268.75
Soft Shell Crabs	150,463	Doz.	37,615.75
Crabs In Baskets	150,000	Baskets	127,500.00
Total			$254,218.21

The above are values at the fishing grounds, and to this should be added the value to the dealer, and in turn to the retailer, in order to arrive at the exact value of the resources derived from these salt water fisheries.

These figures do not include salt water shrimp, the catch of which amounted to:

Shrimp, used fresh and for canning purposes	24,465,080 Lbs.
Shrimp, used by drying platforms	1,421,881 Lbs.
Total	25,896,961 Lbs.

In order to produce 1,421,881 lbs. of dried shrimp, there was used 12,441,459 lbs. of fresh shrimp, as it requires 8¾ lbs. of fresh shrimp to produce one lb. of dried shrimp; therefore, the shrimp catch for the first ten months of 1930, amounted to 36,906,539 lbs.

The Department intends making an exhaustive study of the life and habits of the shrimp and fish of the State, with the aid of the Biological Division of the U. S. Government. The Research Division of the Department will be fully organized at the begining of the coming year to take up this work, as Commissioner Robert S. Maestri is now in communication with the Bureau of Biological Survey of the United States Government to secure what assistance he can in the organization of this work. So far, nothing in this line of work has ever been undertaken, and it is the hope of Commissioner Maestri to have this work completed during his administration.

BEECHWOOD FISH HATCHERY

This hatchery operated by the Department is located at Forest Hill, near Alexandria, where game fish (known as bream and perch) and such fish as green trout, or black bass, goggle-eye perch, or warmouth bass, and sunfish are in cultivation. There are eight ponds in this hatchery, from which were hatched during the year 1930 over one million game fish, of which 275,000 were bass and 750,000 sunfish.

During 1930 a total of 585,000 game fish from this hatchery were distributed to various applicants. This distribution consisted of 185,000 bass and 400,000 sunfish, used for stocking public streams and private ponds. These were delivered entirely at the expense of the Department and were carried by trucks and planted in waters of practically every parish of the State of Louisiana. This work was done by Mr. B. F. Bradford, Supervisor, and the planting and delivery of the fish was done by Mr. C. R. Lafargue, Superintendent, of Beechwood Hatchery.

These deliveries are made during the fall and winter, as fish spawn in early spring and the fry can not be transported for any distance during the warm weather, as the water must be kept 50 degrees F. to insure safe delivery.

LAKE BRUEN FISH HATCHERY

This hatchery had been practically abandoned, but during the administration of Commissioner Maestri several thousand dollars have been expended in improvements and buildings. It is situated in Tensas Parish near St. Joseph, and comprises 50 acres of land with four ponds. A canal is now in the course of construction which will bring the water from Lake Bruen to the largest pond, where a 10-inch electric pump has been installed, which will take the water from this pond to the other three ponds.

Waterworks and drainage have been installed at this hatchery, and also an automatic electric pump, to supply water for the residents of this section.

Since this hatchery was built, the State has constructed about a mile and a half of gravel road leading from the highway to the hatchery.

As soon as the work on the pump, which is now in progress is completed, water will be started into the ponds, and this hatchery will be in full operation as another game fish culture station in the State of Louisiana. The Department anticipates that all this work will be long settled within the next sixty days.

THE NORTHWEST LOUISIANA FISH AND GAME PRESERVE

Recently a survey has been completed and maps have been made of the three lakes, Black Lake, Clear Lake and Saline Lake which together will constitute the Northwest Louisiana Fish and Game Preserve located in the Parishes of Natchitoches and Winn.

This survey was started last Spring but was delayed about two months by the water which backed in from Red River during the recent flood. After the waters subsided the survey was resumed and was completed about the end of August. Since that time, Mr. Frank H. Waddill, Consulting Engineer of New Orleans, who was in charge of the survey, has been making his maps and calculating the acreage owned by the different property holders which will fall within the preserve. Blueprints of the preserve showing the ownership of property and the proposed water line and limits of the preserve are now on display at the offices of the Natchitoches Chamber of Commerce and the Winnfield Chamber of Commerce.

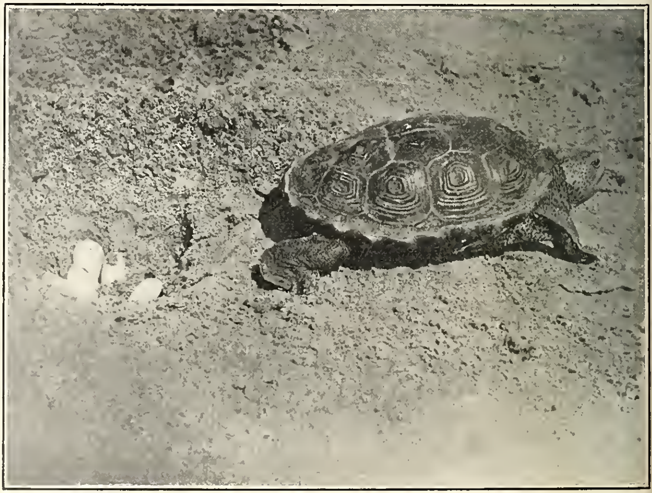
Letters have been mailed to all property owners affected by Mr. Robert S. Maestri, Commissioner of Conservation, who has worked very hard on the establishment of the Preserve and who is very enthusiastic over what it will mean to the people of Louisiana. These letters ask the property owners to dedicate such portions of their lands as will be covered with water to the State of Louisiana for the purpose of making a game and fish preserve. The property owners doing this will retain their mineral and timber rights on the property so dedicated as guaranteed by Section 3 of Act 69 of 1928 which created the Preserve.

The plans for the Preserve include a dam or spillway to be placed in Saline Bayou which will maintain a year round water level in the three lakes and will thus prevent the loss of fish which now occurs during the low water stage in the dry season.

Recently a meeting was held with the Board of Directors of the Natchitoches Chamber of Commerce by Senator H. L. Hughes (father of the bill creating the Preserve), Edwin L. McClung (Superintendent of the Preserve) and other parties interested in Conservation and especially in the establishment of the N. W. La. Fish & Game Preserve. The Chamber of Commerce in Natchitoches is lending every effort to give publicity to this project and is aiding the Department of Conservation in the acquisition of the water rights required. In Winnfield Mr. B. W. Bailey, President of the Bank of Winnfield, is rendering most valuable assistance.

When the dam is completed roads will be built in and around the Preserve which will greatly benefit the people living in the vicinity

(Continued on page 30)



A Diamond Back Terrapin Depositing its Eggs in the Sand.

Sea Foods Yield Iodine Essential to Balanced Diet

Deficiency of Element Found to Cause One Form of Goiter; Marine Products Also Rich

BY JOHN RUEL MANNING
Technologist, Bureau of Fisheries

MARINE products are many times richer in iodine than any other source of foods for human and animal consumption. In fact, sea foods contain from 50 to 200 times more iodine than foods of a land source, whether animal or vegetable.

Iodine deficiency causes one form of goiter. There are certain regions of this country where iodine deficiencies exist and, consequently, goiter is prevalent. The most common practice on the part of the medical profession is to prescribe iodine in some form to be added to the regular diet to supplement the natural deficiencies. The iodine may be administered in the form of potassium iodide, or such special iodine preparations as iodized salts. These are unpleasant doses and it should not be necessary to administer preparations of this kind when palatable foods, containing ample iodine for the needs of the body, are available.

In sea foods you have the iodine present in organic combination, provided for by nature, and in a readily assimilable form. No such disagreeable tastes and digestive "acclimations" as ordinarily accompany artificial administration, will occur in the addition of marine products to the diet to supplement iodine deficiency.

LOCATION OF GOITER BELTS

The United States Public Health Service has prepared a map of the United States showing the prevalence of simple goiter in different sections. The map is based on data collected in the examinations of 2,500,000 of men for World War Service. These sections where goiter is most prevalent are the regions around the Great Lakes and Northwestern United States. In these so-called goiter belts, the soils and, in turn, the vegetations are relatively deficient in iodine. In many places there seems to be a significant relation between soil erosion and iodine deficiencies. Through countless centuries the soils in some sections have been partially and gradually depleted of their mineral constituents by rain and drainage. As a consequence of eating food products from these deficient soils, men and animals have suffered from goiter or "big neck."

There is an opportunity to return a part of these minerals to the depleted regions and partially compensate for the natural deficiencies now existent. Products of the sea are the richest known natural sources of iodine and other mineral constituents. From the standpoint of national economics, it is good business to encourage and carry on the constructive and intensive advertisement of products from the sea in those regions where these products are most needed. There is a great opportunity for fishery industries to render a real public service by concentrating on the marketing of fishery food products for human consumption and feeds of a marine origin for use in animal nutrition in these sections of our country where there is a constant fight going on against goiter and other diseases resulting from mineral depletion. Here, sea food is not a luxury, but a necessity. Here, sea food is not only a valuable food, but an important factor in preventive medicine.

The iodine content of some representative marine products is given as follows (in parts per billion, dry basis):

FRESH	
Lobster	11,590
Clams	6,200
Oysters	6,000
Oyster juice	3,170
Shrimp	2,250
Rock	2,000
Bluefish	1,870
White perch	1,420
Mackerel, Spanish	1.410
Tautog	1,170
Spot	1,140
Haddock	1,050
Cod	1,000
Scup	950
Pollock	900
Squeteage	850
Halibut	830
Scallops	810
Winter flounder	730
Alewives	500
Crabs, soft	490
Mackerel, common	330

PRESERVED	
Liquor from canned oysters	9,600
Liquor from canned mussels	6,720
Lobsters, canned	5,320
Roe, shad, canned	4,100
Oysters, canned	4,010
Roe, herring, canned	3,790
Crab meat, Japanese, canned	3,150
Mussels, sea	2,860
Buck roe, codfish	2,230
Clams, minced (New England)	1,970
Codfish, shredded	1,520
Sardines, Maine, canned	1,510
Roe, codfish, canned	1,510
Cod, salt	1,410
Codfish cakes, canned	1,150
Shrimp, canned	1,140
Sardines, California, canned	1,050
Herring, smoked	1,000
Herring, salt	890
Finnan haddie, canned	820

(Continued on page 30)

Encouraging Owners of Land to Grow Forests

Revision of Both State and Federal Tax Laws in Order to Lessen Burdens During Nonproductive Years Viewed as Necessary.

By William Mauthe
Chairman, Conservation Commission, State of Wisconsin.

WITH AN EYE to the needs of citizens of today and tomorrow, several states, including the Lake States, Michigan Minnesota, and Wisconsin, have been experimenting with forest crop tax laws.

While we have not passed the experimental stage, definite forward steps have been taken; definite results have been attained. The future is bright for the development of forest resources through education of land owners and the public at large; through enactment of new laws and amendment of existing law, and through efficient administration of these laws.

Before the new laws needed can be secured the public must be sold on the idea that the demands for forest crop tax laws did not come from the owners of timberlands, but from counties facing bankruptcy; the public must learn the truth, that these laws are the result of relentless pressure of economic conditions.

Unproductive land cannot pay taxes, unless it has a speculative value. Land which is producing nothing will revert sooner or later to the county within which it is located.

No longer is there any appreciable speculative value in the cutover barrens of the Lake States. Not even the most optimistic hold to the belief that this land can be absorbed into agriculture. The present economic trend in agriculture all over the country is toward concentration on the better lands and the abandonment of the marginal lands. It is fairly clear to all who have studied the subject that the only uses to which this land can be put is timber-growing and recreation. Naturally, only a small fraction of the immense acreage can be used for recreation.

To meet the initial requirement that the public must favor or be sold on the forest tax laws, it is of supreme importance that any proposed law should be readily understandable. Public and landowners must know the provisions of the law as well as the necessity for it; they must be able to understand those provisions and how they are to be administered; they must understand what is expected of the law in the way of benefits, and it is well if they know the pitfalls and possibilities of error on the part of those administering it.

The pulp industry opens an avenue to the timber grower whereby he can sell small material for pulpwood and creosoted stock. This will pay the carrying charges for the young forest and will not reduce the ultimate yield because such small trees would be killed out anyway.

As States, counties, cities, and towns cooperate with owners of forest lands, the public, watching this work, will grow more and more forestry conscious, making possible longer and longer steps in the direction of forest productivity.

I believe we are about ready to provide for general registration of forest land. All lands of certain description should come automatically under the operation of the forest tax laws. This already is a feature of a recent Oregon law.

Stated so bluntly, this sounds like a radical, revolutionary proposal. But let us look at the proposal in the light of what may develop from proper administration of the present optional law. Wisconsin has an automatic workmen's compensation act. In the beginning the law was optional, employers elected to come under the law or not, as they thought best.

The optional law worked well from the outset. Then the law was made automatic without a ripple of complaint, and it has continued to operate with general satisfaction.

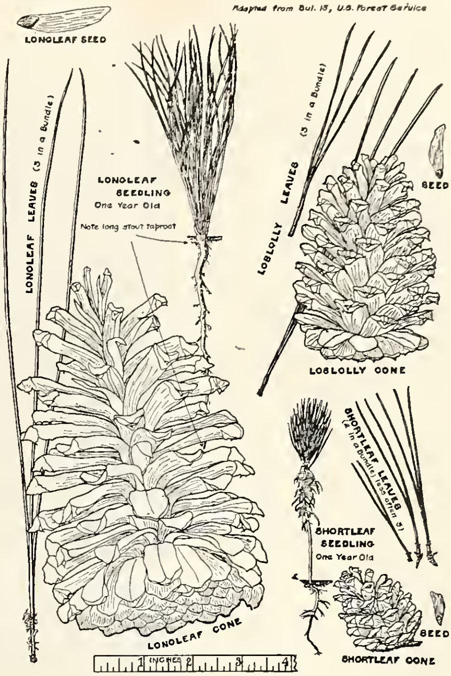
Much the same thing may happen in the case of the forest crop tax laws. If they work as well as first indications lead us to believe if they are properly administered, then there is no reason why they should not come to be almost universally effective by general acceptance. Then they can be made automatic, bringing in the last stragglers when there is no longer any reason to doubt.

Perhaps there might be an intermediate step, a period during which the State authorities would be charged with the duty of examining lands, and where conditions are ideal, given the right to initiate proceedings requiring the owner to show cause why the lands should not be classed and taxed as forest land.

But by whatever course we proceed, we must press forward with confidence, firmly, steadily, and in a large way. Unless our forest crop tax laws are effective in a large way, they rapidly lose in prestige.

Only under some sort of tax relief, such as the forest crop tax laws, can private individuals be encouraged to grow forests; only through such relief to property owners can Wisconsin hope to bring 3,000,000 to 4,000,000 acres under forest production, an acreage which I consider a minimum requirement for future prosperity of the State.

We will need more trained foresters to advise the landowners and check their progress and shortcomings. State and Federal aid to counties undertaking forest practices on tax delinquent lands may prove desirable, even necessary; forest projects are just as worthy of State or Federal aid as are highways, schools, agricultural associations, county fairs, and similar projects.


Adapted from Bul. 13, U.S. Forest Service

As in no other recent period, the Summer of 1930 demonstrated that the means at the disposal of State governments for fire prevention and suppression are woefully inadequate.

It must not be forgotten that every computation as to the probable productivity of forest lands is based upon the proposition that fire shall not enter the growing forest. Before too much money is spent for tax relief to landowners, we must make sure that enough funds have been reserved to supply both equipment and manpower for adequate fire protection and control. Fire protection must go hand in hand with forest development if either is to be effective; it must extend beyond mere expenditure of money by the State and Federal government; it must include measures of safety to be taken by lumbermen, landowners, public utilities, the State, and the Federal government.

Encouraging forest development is a Federal as well as a State problem. It is discouraging and unfair that property tax burdens should be lifted by the State while the Federal income tax burden upon forest practices remains to clog our progress.

(Continued on page 28)

Hunting In Louisiana

On account of the geographic situation of the State of Louisiana, it affords a great assembling place for the great horde of migratory waterfowl and shorebirds. No less an authority than William T. Hornaday, Sc. D., director of the New York Zoological Park, and one of the foremost champions of the nation's game, Wrote recently in his "Our Vanishing Wild Life":

"There is one State in America, and, so far as I know, only one, in which there is at this moment an old-time abundance of game bird life. That is the State of Louisiana. The reason is not very far to seek. For the birds that do not migrate—quail, wild turkeys, and doves—the cover is yet very abundant. For the migratory game birds of the Mississippi Valley, Louisiana is a grand central depot with terminal facilities that are unsurpassed. Her reedy shores, her vast marshes, her long coast line, and abundance of food furnishes what should not only be a *haven* but a *heaven* for the geese."

ANTICIPATION
Daybreak in the Blinds on the Public Shooting Grounds at the Mouth of the Mississippi River.

WATERFOWL: DUCKS, GEESE

Ducks: This large family of waterfowl that winters with us, consisting of thirty varieties, some which are very rare, while others are quite numerous, is sought after by the many hunters of the state during the ninety days open season. Some of the species are sought after more than others because of their delicacy of flavor and their size, such as the Mallard, or French Duck, Pintail, Canvasback, and Teal. The first three ducks mentioned in our list are the Mergansers or fish-eating ducks.

American Merganser: (Bec-scie) A common winter visitor.

Red-Breasted Merganser: (Saw-bill or Sea Duck) These two varieties are found along our Gulf in the salt water during the winter months.

Hooded Merganser: (Cottonhead) This beautiful duck is found in the fresh water ponds and rivers where it secures its food which consists of small fish and other small aquatic life.

Mallards: (French Duck) This is one of the best known ducks in Louisiana and needs no description.

Northern Black Mallard: Although a winter visitor, it is never very numerous, and when one secures the prize he can congratulate himself.

Summer Mallards: (Summer French Duck) This duck is like the preceding species but much smaller and minus the red legs. Can easily be distinguished from the Black Mallard of the North. This bird is a breeder in all southern parts of the State, nesting early in March.

Texas Mottled Duck: This duck is found from Marsh Island into Texas where it breeds.

Gadwell: (Gray Duck) While rather a large duck in appearance and very numerous, it does not rate high in flavor.

European Widgeon: This is a rare visitor. Three specimens were secured by W. E. Lea, Cameron Parish, in 1915, and two reported by Mr. McIlhenny this winter, 1929-30.

Baldpate: (Zin zin) This member of the widgeon family is quite common with us through the winter.

Green-winged Teal: This bird is here in great numbers and is much sought after.

Blue-winged Teal: This is our earliest arrival of the duck family and the last to leave in the spring for its breeding grounds. A few of these ducks remain and breed in the State.

Cinnamon Teal: (Silver Teal) This rare but beautiful duck is found during the winter in Louisiana.

Shoveller: (Spoonbill Duck, Scooper) This duck is very common along our Gulf coast and in the month of March attains very beautiful plumage, but its huge bill offsets much of its beauty.

Pintail: (Sprig, Sprigtail) This large, aristocratic duck is much sought after by hunters. It is found in great numbers during the winter in our State.

Wood Duck: (Branchue, Summer Duck. Squealer) This is the most beautiful of our Louisiana birds. Although protected by both Federal and State laws, it is often killed either by mistake or ignorance. It is a breeder in our State.

Redhead: This duck resembles the following duck, but is never very common.

Canvasback: (Horse Duck) This is one of our most highly prized ducks which has a delicious flavor on account of the food that it eats, such as wild celery and the delta potato. Being a great diver it secures its food from the bottom of our deepest ponds.

American Scaup Duck: (Blue-bill, Gray-back, commonly called Dos-gris) This is one of our commonest winter visitors.

Lesser Scaup Duck: (Blue-bill, Little Gray-back) Common in Louisiana from the middle of October until March.

Ring-neck Duck: (Black Duck, Black Jack) Another common winter visitor.

American Golden-eye: This bird was noted to be quite plentiful this season.

Buffle-head: (Marionette, Butter-ball) Winter visitor.

Old Squaw: This duck is rather rare in Louisiana but six specimens have been taken at different times to our knowledge.

American Scoter: Rare.

White-winged Scoter: Rare.

Surf Scoter: Quite rare.

Ruddy Duck: (Stiff-tail) Quite common during the winter months.

Black-bellied Tree Duck: Rather a rare visitor.

Fulvous Tree Duck: (Tee-kee, Yellow-bellied and Yankee Duck) This duck is quite common during the winter months.

GEESE

Lesser Snow Goose: (White Brant) Quite common during the winter months in our marshes.

Greater Snow Goose: (White Brant) This goose is a little larger than the preceding species. Quite common here.

Blue Goose: (Blue Brant, Eagle-headed Brant) This is the most common of our geese in the winter time when they gather in great flocks along the Louisiana coast mixing with the Lesser and Greater Snow Geese. Their favorite food is the three-cornered grass, which grows profusely in our State, making it an ideal winter resort for these choice geese.

Ross Snow Goose: This rare goose has two records in our State.

White-fronted Goose: (Speckle-belly, Pied Brant or Gray Brant) This bird is quite common with us.

Canadian Goose: (Ring-neck, Honker, French Goose) This is the largest and commonest goose next to our Blue Goose found along the Mississippi River during the winter. Many are killed on the sand bars, being shot from what are called pits.

Hutchins Goose: Very much like the preceding, only smaller. Quite common.

LAND BIRDS

Bob White: (Quail, Partridge) This bird is too well known to need description.

Wild Turkey: This king of the American game birds, like the quail, needs very little description, and we are glad to report that it is becoming more plentiful in our State due to the vast area of cut-over lands that have been allowed to grow in thick underbrush.

Mourning Dove: This beautiful bird seems to be able to hold its own in our State.

White-winged Dove: This large dove is numbered among our birds, on account of a few sometimes being killed with other doves.

Ground Dove: The smallest of the doves; observed during both spring and fall migration.

OTHER GAME

Among other game that is plentiful in Louisiana are deer, squirrels, and rabbits.

HUNTING CLUBS IN LOUISIANA

Every chartered or unchartered hunting club or association in the State having more than three regular members and occupying or owning a club-house, or club-boat, or other fixed or regular place of abode during the open season, must, before the opening of the hunting season in each year through its officers or a member, apply to the Department for a special hunting club permit and license, which is issued by the Department upon the receipt of Five ($5.00) Dollars.

All hunting clubs are required to make reports to the Department of all game killed by members within one month after the close of the legal open season. Report blanks are furnished the clubs by the Department of Conservation.

Following is a list of licensed hunting clubs in Louisiana:

Barmore Hunting Club, Madison Parish. (Dr. F. C. Bennett, President, 502 Ouachita National Bank Bldg., Monroe).

Benoits, Eulies, Hunting Camp, Lacassine Bayou. (E. Benoits, owner, Lake Arthur).

Buck Horn Club, Ponchatoula. (E. C. Strader, Ponchatoula).

Buras, Pete, Hunting Camp, Lacassine Bayou. (P. Buras, owner, Lake Arthur).

Burnside Hunting Club, Burnside. (Wallace J. Waguespack, Secretary, Burnside).

Coastal Club, Inc., DeRidder. (E. W. Brown, Secretary, DeRidder).

Crescent Gun and Rod Club, South Point. (J. H. Lafaye, Jr., Secretary, 205 Q. & C. Buldg., New Orleans).

Crowley Louisiana Club, Crowley. (P. L. Lawrence, President, Crowley).

Daigle Hunting Club, Lake Charles. (Alce Daigle, Owner and Manager, Lake Charles).

Delta Duck Club, Quarantine. (C. Sag Harris, Mgr., John Dymond, Jr., Pres., 1001 Maison Blanche Bldg., New Orleans).

Dixie Delta Club, Larose. (Henry Hellberg, President, 410 Cotton Exchange, New Orleans).

Duhon, Nobert, Hunting Camp, Lake Arthur. (H. S. Finnerty, Secretary, Lake Arthur).

Florence Club, Gueydan. (E. A. Arpin, Mgr., Gueydan).

Grand Chenier Hunting Club, Grand Chenier. (J. W. Doxey, President, Grand Chenier).

Lafitte Gun and Rod Club, Lafitte. (C. L. Johnson, President, 2303 American Bank Bldg., New Orleans).

Lake Arthur Club, Lake Arthur. (Mrs. Margaret Riette Lang, Asst. Secretary, Lake Arthur).

Lake Charles Hunting and Fishing Club, Lake Charles. (G. F. Kelly, Secretary-Treasurer, Lake Charles).

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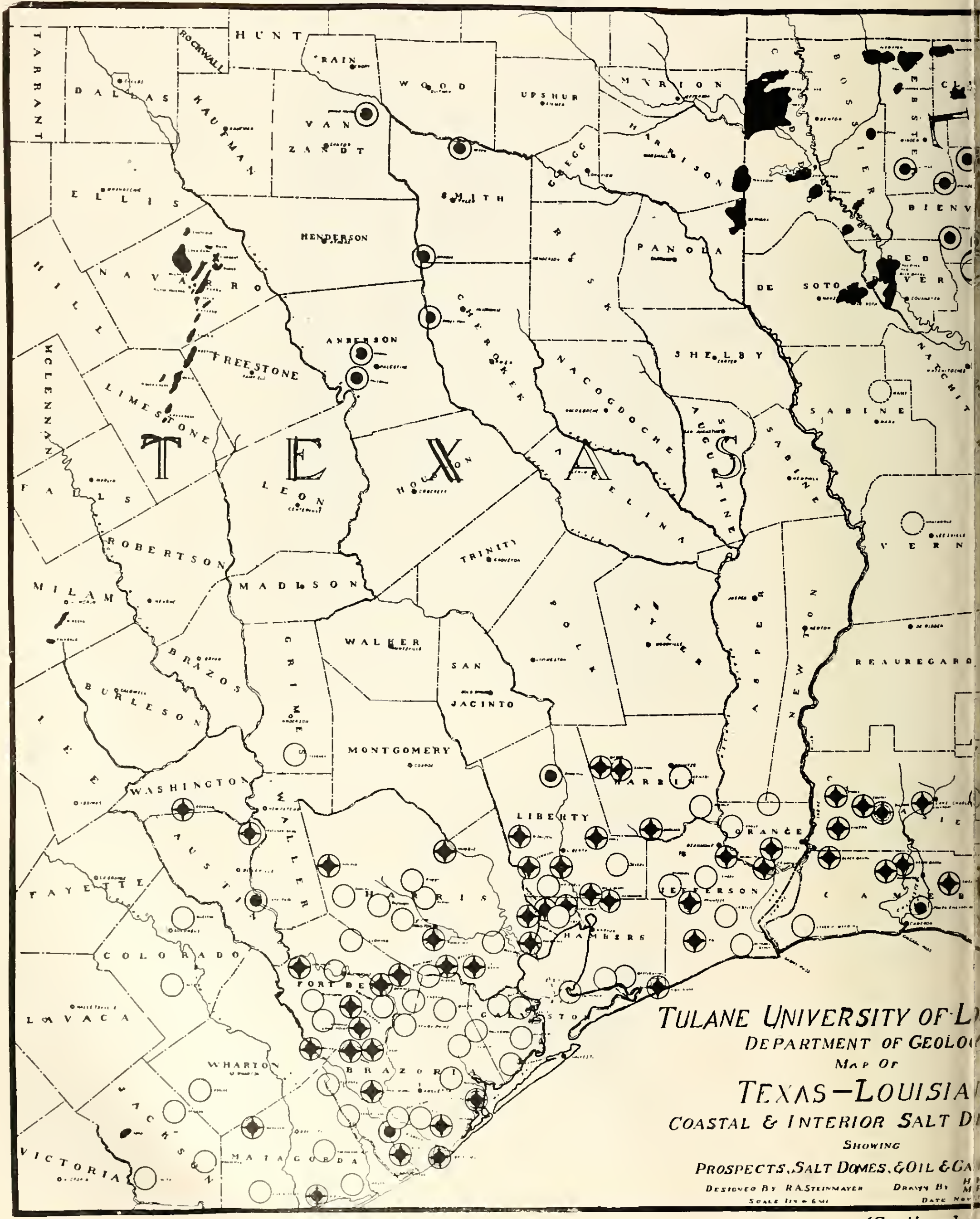
REALIZATION
The End of a Morning's Hunt in the Louisiana Marshes.

AMERICAN SALT-DOME POSSI



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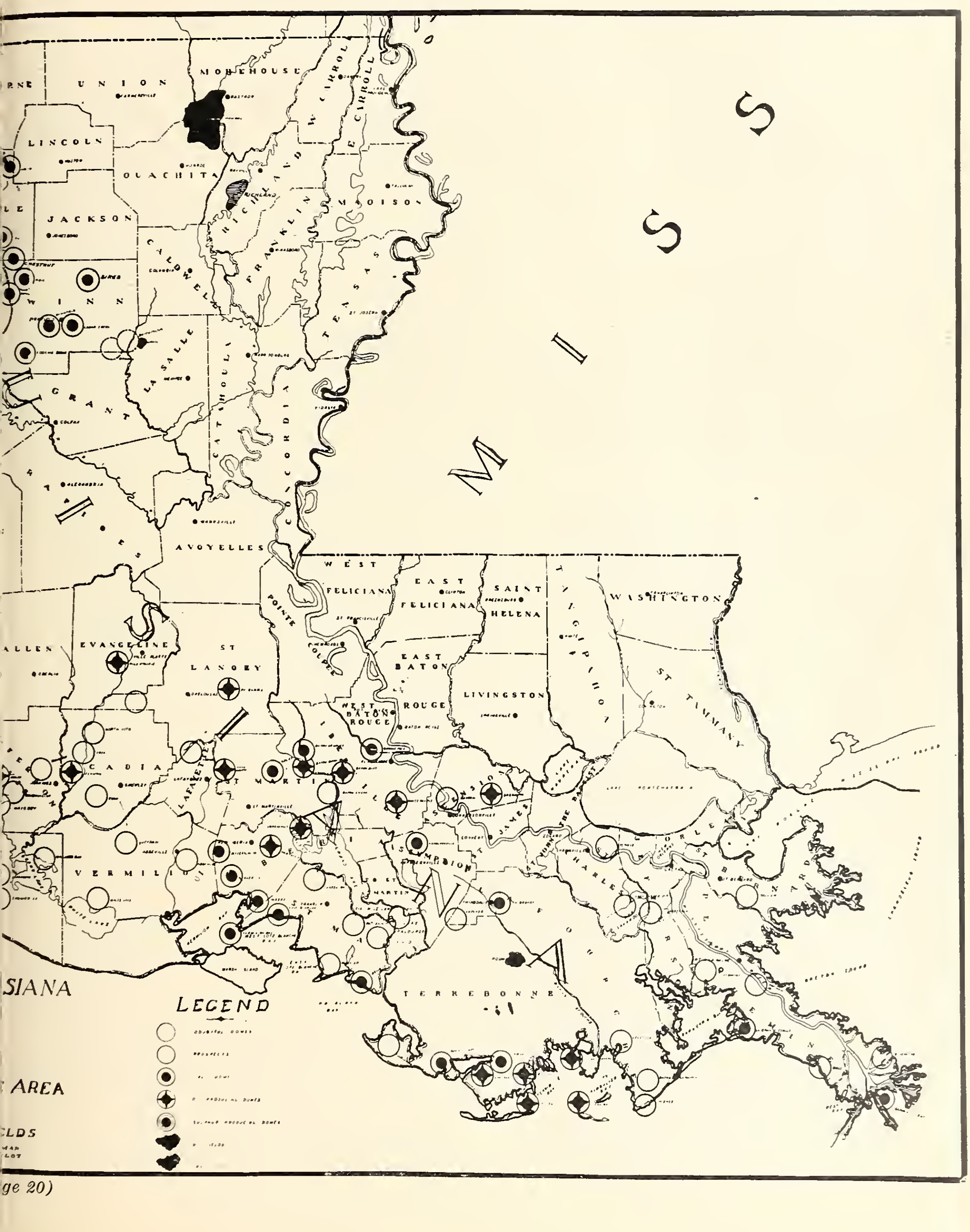

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Louisiana Conservation Review

A monthly publication devoted to the dissemination of news and in the interest of the conservation of game, fish, and other wild life, forests, and minerals.

Distributed free by the Department of Conservation to anyone interested in the protection and utilization of the State's Natural resources.

ROB'T S. MAESTRI, *Commissioner*
126 N. O. Court Bldg., New Orleans

Newspapers and other publications are invited to make use of contents, in whole or in part, and with or without credit.

JAMES P. GUILLOT .... *Editor*
N. E. SIMONEAUX .... *Associate Editor*
HAROLD WINLING .... *Business Manager*

VOL. I. JANUARY, 1931 No. 4

EDITORIAL

Activities of Oyster Division for 1930

Considerable progress has been made by the Oyster Division for the year 1930. This division directed the planting of forty-five thousand (45,000) barrels of shells received from and bedded by, the packers of Mississippi and Louisiana, without cost to the State. In two years it is reasonable to expect a crop of two hundred thousand (200,000) barrels of marketable oysters available from this planting.

Fifteen thousand (15,000) barrels of shells were bought by the Department from the packers at Houma. These shells were distributed to the fishermen of Lafourche and Terrebonne parishes free of charge and bedded as cultch. In 1932 a harvest of at least seventy-five thousand (75,000) barrels of oysters can be expected from this source.

Bulletin No. 1. The Louisiana Oyster, Its Cultivation and Use, published in 1916, has been completely revised and rewritten. This Bulletin is now ready for distribution.

The first oyster research work ever conducted by this department has resulted in the collection of valuable data, which is of special scientific value and may develop to be of considerable economic importance as well. From the data obtained two scientific papers have been written and will be published shortly.

Changes have been made in the keeping of records and files which has worked out to a distinct advantage.

Sportsmen Save Thousands of Young Pines to Posterity

While a party of sportsmen on a week end combined quail and snipe hunt in St. Tammany Parish were rolling along one of that parish's well kept gravel roads that is a part of Governor Long's very efficient highway system, indulging in the usual good natured "kidding" and badinage that is handed back and forth when a party of good fellows get together, a sudden exclamation of "Well, I declare, look at that fire," broke from the lips of the driver of the car and he called the attention of the party to a forest fire that had already gained quite a headway beside the road. "Let's put it out," exclaimed one of the party. "O. K., let's," was the unanimous response.

The Ford was promptly pulled over to the side of the road and the party piled out.

The fire had already gained a good headway, and the party had, of course, no fire fighting equipment available, but they were one and all outdoorsmen whose very love of the woods and fields had accustomed them to thinking and acting quickly in an emergency. Hunters' knives flashed in the bright December sun, and under the very efficient leadership of Mr. Claude P. Foret, Cashier of the Forestry Division of the Department of Conservation, whose training in that Department, as well as the Agricultural Department of the State, well fitted him to take charge of the situation, the party went to work.

The keen blades sheared through the stems of several bushy headed young pine saplings that were well soused in the waters of a neighboring ditch, and then used to beat out the flames that were already sweeping into a splendid stand of beautiful young pines, as well as toward a roadside home and oil station that seemed to be temporarily tenantless. Even the wise old pointer seemed eager to help, and scrambled out of the machine and with eager whines kept circling the fire fighters as though anxious to do something to save his beloved woodland.

In a short while the fight was won, and everybody climbed back in the machine, smoke blackened, but happy in the knowledge that they had saved a part of Louisiana's splendid pine forests.

A trifling incident, some will say, but it goes to show that the campaign of education broadcasted over the country by the Federal Forestry

Service, as well as the Forestry Division of the Department of Conservation, has changed the point of view of the general public toward our woods and fields.

A few years ago, that same party of sportsmen would probably have stood idly by and watched the fire sweep on in its path of destruction, without making any effort to check it—but now how different.

Report of Division of Enforcement

By J. B. DAUENHAUER, Director

We believe that the conservation laws have been enforced more strictly during the past year than ever before.

The present Commissioner, R. S. Maestri, assumed office on December 2, 1929, and appointed me as Director of Enforcement on the same day.

Since we have been in office the grand total of arrests for all violations of the conservation laws amounted to 865 and consists of the following up to December 1, 1930:

Hunting at night	26
Hunting in close season	171
Hunting without a license	94
Violating trapping laws	85
Possessing illegal pelts	15
Possessing song birds	2
Operating fish business without a license	14
Possessing illegal fish	88
Buying undersize fish	1
Dredging oysters on leased ground	9
Fishing with illegal tackle	129
Dynamiting fish	10
Trespassing and hunting on game preserves	17
Polluting waters and streams	3
Interfering with officer	2
Exceeding bag limit	9
Selling ducks	12
Possessing wood duck	6
Killing non-game birds	4
Fishing without a license	147
Trawling without a license	4
Seining game fish for bait	16
Failing to make club report at close of hunting season	1
	865

We have particularly instructed all the license and tax collectors working under our direction that where the violation is of a federal nature that the charges are to be made in the federal court, and to show how well this has been observed we will compare the number of charges that have been made in the federal court this year and the previous year. During the year 1929 five cases went to the federal court. During the present year, 39 charges were filed in the same court.

The greatest number of federal arrests were for the selling of ducks. In this connection there was arrested one hotel manager and one club chef where ducks were served to our agents, also ten other parties were arrested for the selling of this class of game. The outstanding arrests were where three parties went on a hunt and killed 182 ducks. Under the law they could not have in their possession more than 90 ducks if they were hunting for two days, but this amount was killed by these parties in one hunt, when under the law they could not have more than 15 ducks each or a total of 45 in their possession.

Measures Are Taken to Save Illinois Fish

The Chicago Sanitary District has been authorized by the Secretary of War, Patrick J. Hurley, to increase the flow of water from Lake Michigan for a period of two weeks to preserve fish life in the Illinois River, according to announcement by Governor Louis L. Emmerson.

The action by Mr. Hurley was taken in response to a letter from Governor Emmerson to President Hoover, in which it was stated that the drought had so reduced the water levels in the lakes and streams that many fish have died. The level of the Illinois River, the Governor said, has been lowered to such an extent that it now has not sufficient depth to protect the fish when ice forms.

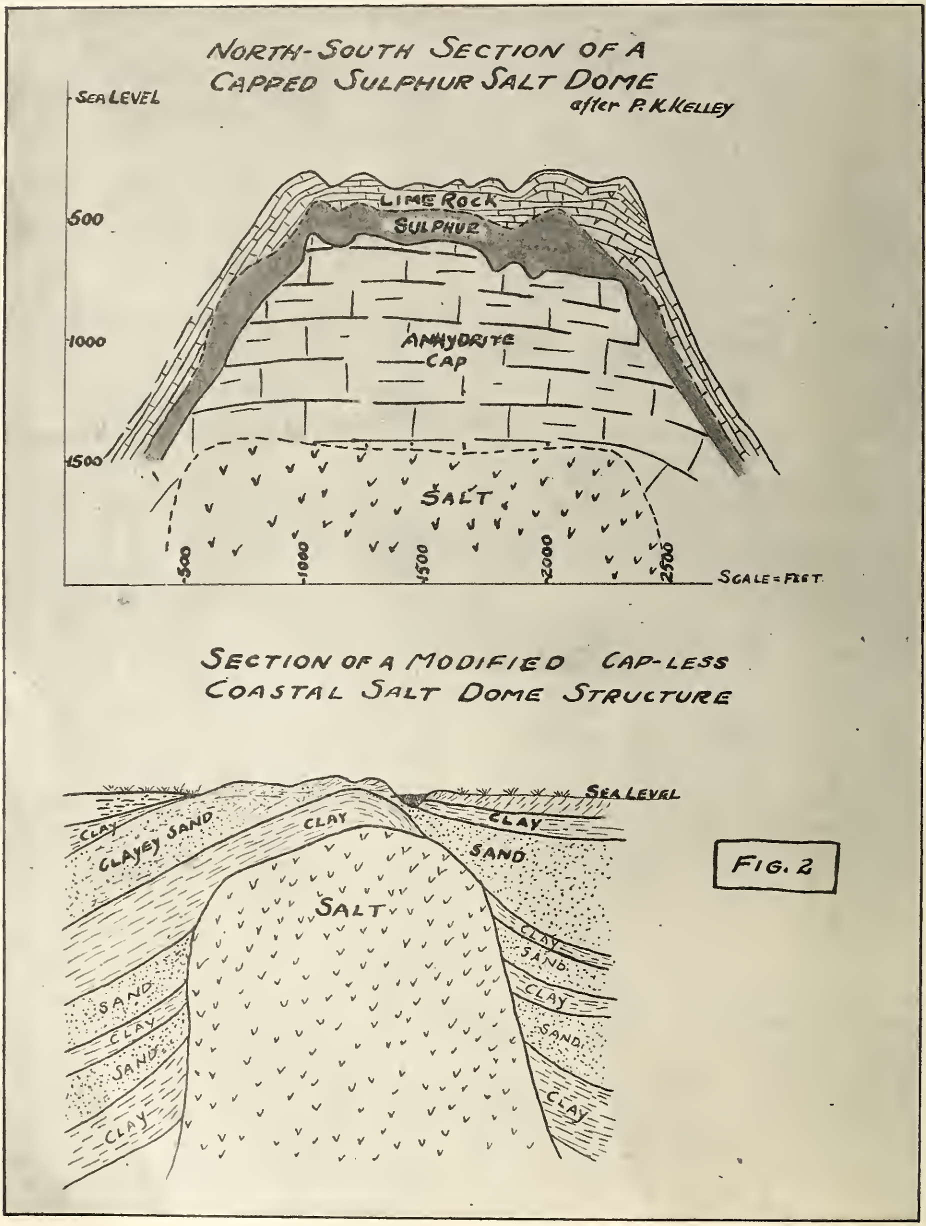
Secretary Hurley's authorization stipulated that any increase in the withdrawal from Lake Michigan would have to be offset later by a sufficient reduction to bring the daily average for the year within the legal limit of 6,500 cubic feet per second.

Egypt's Oil Basin

The Egyptian government has recently completed construction of a petroleum basin at Suez harbor, providing berths for three tankers and designed to facilitate the discharge of crude petroleum imported from foreign countries, principally from the Far Eastern properties of the Shell, according to a dispatch received in the Department of Commerce from Trade Commissioner Ralph F. Chesbrough, Cairo. Formerly such crude was pumped from Port Toufick to Suez through a pipe line. The new basin will involve pumping over a distance of only half a mile and will therefore materially reduce handling charges.—*(Issued by Department of Commerce.)*

AMERICAN SALT-DOME POSSIBILITIES

(Continued from page 17)

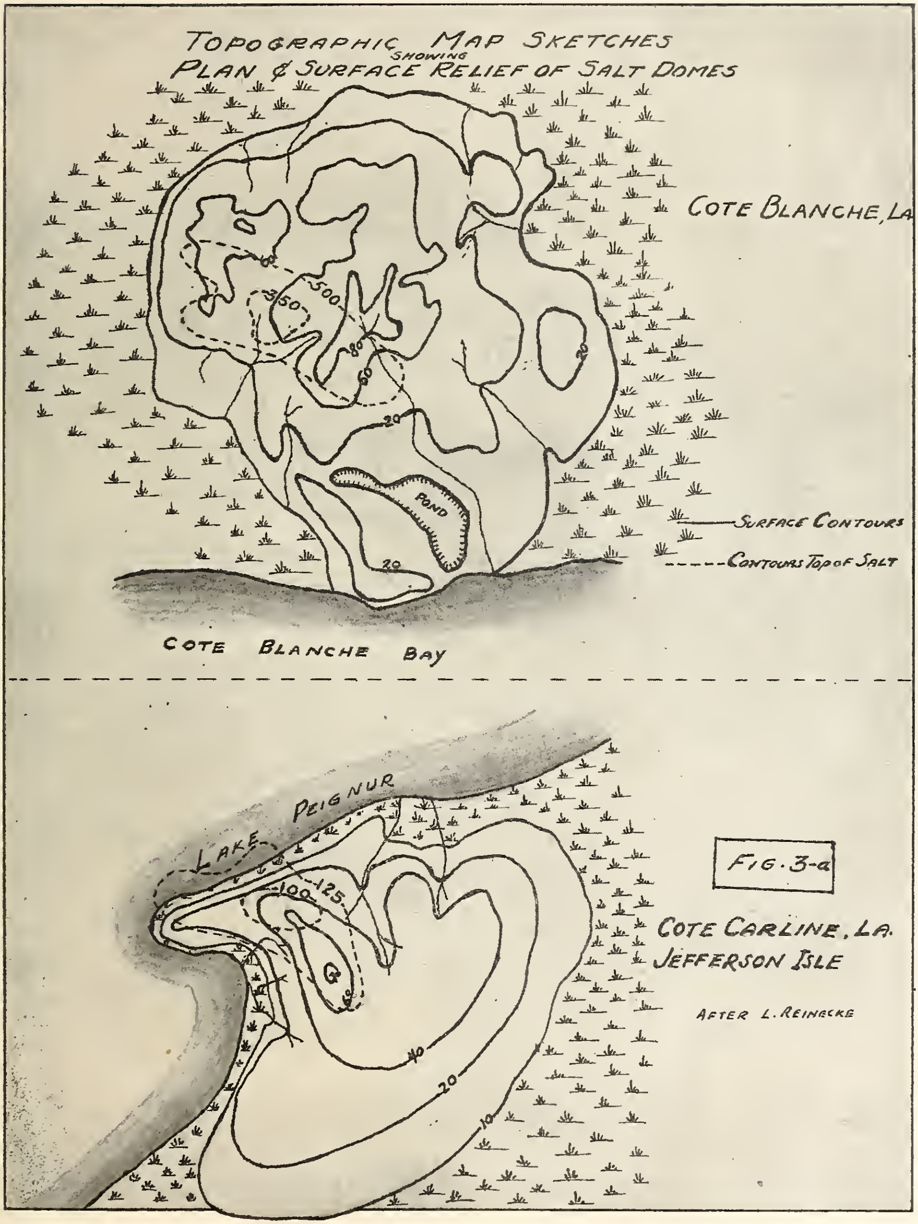


NORTH-SOUTH SECTION OF A CAPPED SULPHUR SALT DOME
after P. K. KELLEY

SECTION OF A MODIFIED CAP-LESS COASTAL SALT DOME STRUCTURE

FIG. 2

AMERICAN SALT-DOME POSSIBILITIES



TOPOGRAPHIC MAP SKETCHES SHOWING PLAN & SURFACE RELIEF OF SALT DOMES

FIG. 3-a

AMERICAN SALT-DOME POSSIBILITIES

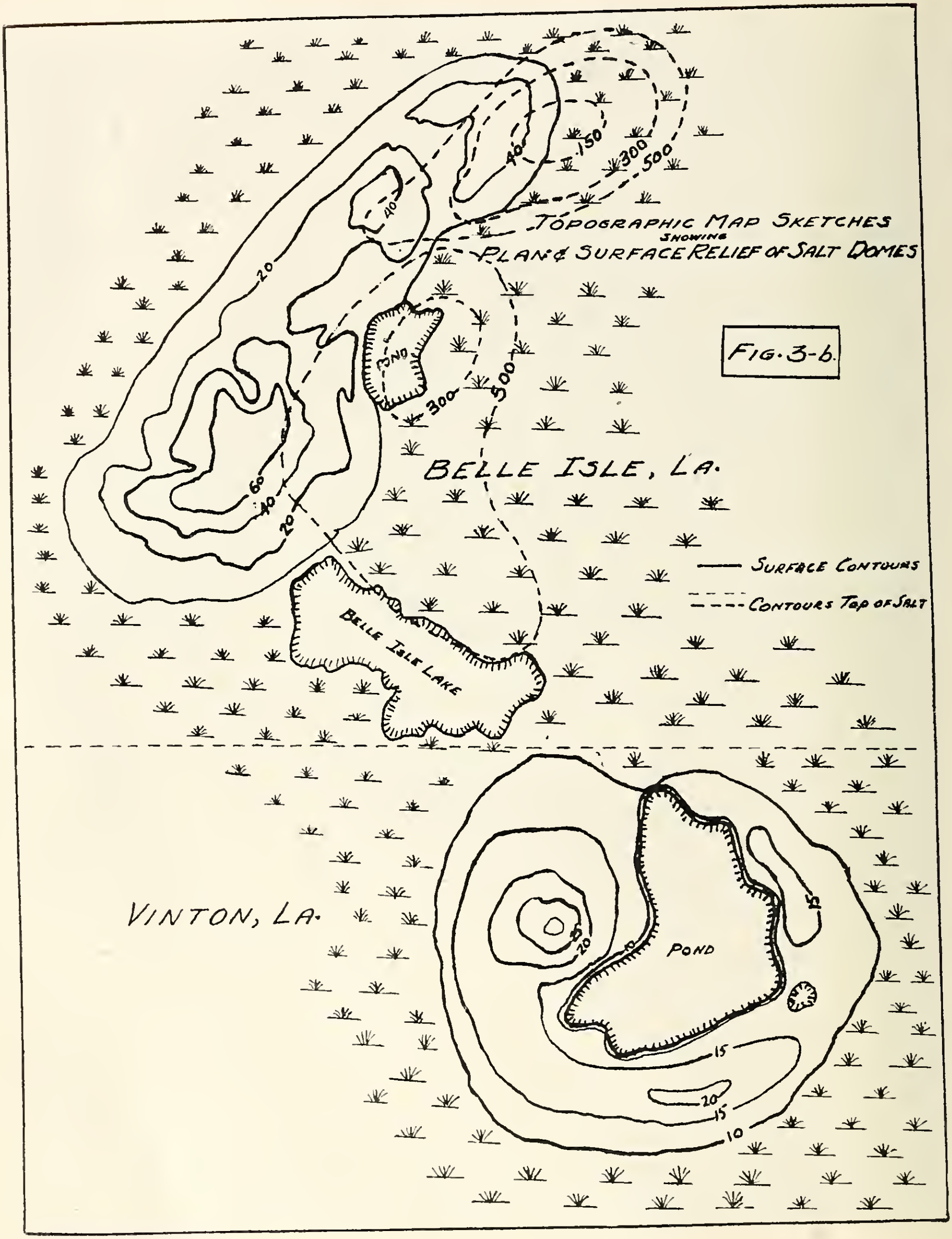


FIG. 3-b.

gypsum, anhydrite, calcite, sulphur, galena, sphalerite, pyrite, petroleum, etc. The first four names constituting the essential, the others the accessory cap minerals. Some authorities consider the cap as a part of the core because they are both salt structure material, while others contend that they are separate and not connected with the salt core, basing their assumption on the occurrence of salt domes without cap rock.

The type and the degree of induration of the sediments forming the overlying and adjacent country rock varies with the geographic distribution of the domes in the Louisiana-Texas province. Those of the coastal group consisting principally of the unconsolidated beds of sands and clays. While the interior group comprises consolidated or slightly consolidated beds of limestone, sandstone, chalk, marl, glauconite, tuff, lignite, shale, clay and sand.

It has been and still is the ambition of many American geologists, from the time of the first description of the "Five Islands" by Thomassey in 1860 to the present, to postulate theories with respect to the origin of salt domes. Needless to say there have been advanced almost as many theories as there are domes. The future holds a ray of hope, however, with our ever widening scope of information, a better knowledge of the salt domes themselves, and the geologic agencies and processes which formed them, that a forth-coming accepted theory has unquestionably passed from the realm of possibility into that of probability.

The present theories of dome origin fall into four general groups. The substance of each briefly stated is as follows: First, those regarding the domes as old cretaceous outliers in Tertiary seas. Second, those regarding the domes as of volcanic origin because of the striking resemblance of an igneous plug to a dome. Third, those regarding the salt dome components, including the cap, as having been precipitated from solution. The weakness of those theories lie in the fact that they do not offer acceptable explanation of the uplift of the overlying and adjacent strata. Attempts have been made to remedy this deficiency by the mechanics of growing crystals. Fourth, those regarding the salt as a solid made plastic by pressure or orogenetic movements causing it to flow in its present position, thereby disturbing and sometimes altering the overlying and adjacent strata. This is a modified form of a theory advanced by European geologists to explain the origin of the salt structures of Germany and Roumania. Appeal has been made for the acceptance of this theory on the basis of evidence of flow structure in the salt core. Its weakness lies in the uncertainty of the existence of extraneous bedded deposits.

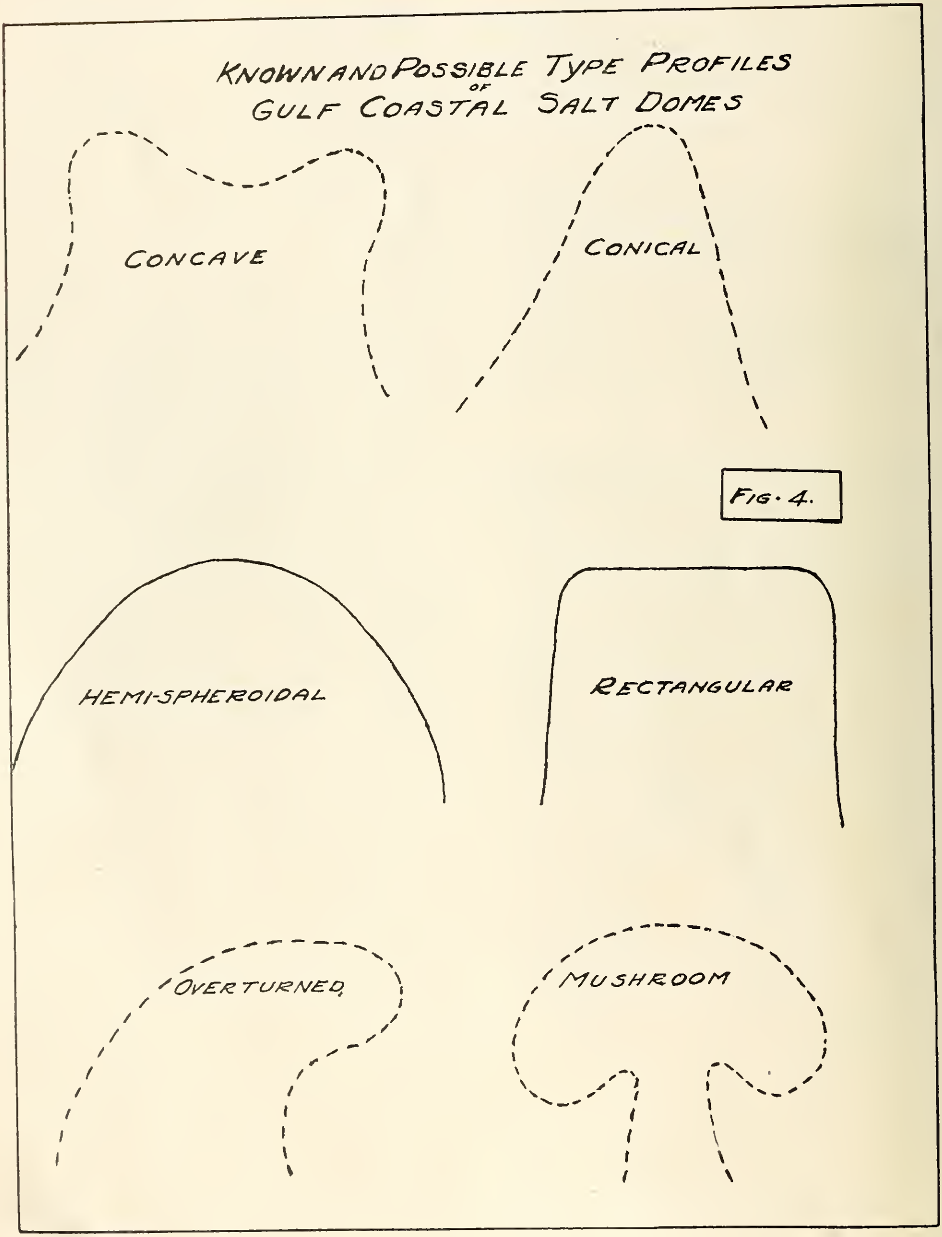
The year 1923 marks an important epoch in the history of geological exploitations and development of American salt domes. Prior to that time there were known to be 40 domes. The existence of the majority of which was determined principally by surface criteria such as, dome reliefs, petroleum seeps, gas seeps, and saline springs. Since then the application of geo-chemistry and geo-physics, especially the latter, has revolutionized geological exploitation into the heretofore unknown and impenetrable depths of the earth's crust. At this time the number of known American domes has increased to 110 with 89 additional prospects, the majority of which will probably prove to be domes and it is possible that many more will be discovered in the near future (Fig. 1).

With both prodigious saline bearing beds theoretically enveloping the entire earth and the American salt domes almost inexhaustible supply sufficient for the needs of man for millenniums to come, surely there must be some greater propelling force, something of more intrinsic value, and something much more romantic to man than the salt itself to spur him to gamble his very all; self, fortune, and friends in the quest of new salt dome discoveries. A salt dome essay would not be worth its salt without an allusion to the black magic associated with it—*oil*—the lure of which, during its short economic life has caused greater anticipation of joy and probably more sorrow to the people of the world than the combined discoveries of all the gold and diamond deposits.

Potentially, at least, every salt dome may be looked upon as an oil possibility. Nevertheless, millions have already been spent and many more millions of dollars must be added in the future to thoroughly test out the petroleum possibilities of the domes. To date, the interior group, as a unit, is apparently barren of commercial accumulations of oil. This also applies to some of the coastal domes. On the other hand, there now exists at least 61 oil productive domes in the Louisiana-Texas province with a gross production during the past year of over 51 million barrels of oil, with still many untested prospects.

Geologists believe that the oil itself has no source relationship whatsoever with the salt except that the attenuated salt structure formed a suitable condition for its accumulation in

AMERICAN SALT-DOME POSSIBILITIES



KNOWN AND POSSIBLE TYPE PROFILES OF GULF COASTAL SALT DOMES

FIG. 4.

commercial deposits. When it does occur it may be found either or both in or beneath cap rock or in the disturbed beds overlying and abutting the dome (Fig. 2).

The quantity of salt, petroleum, and associated minerals so basically necessary to the chemical and allied industries existing in the known, probable, and possible salt domes in the Louisiana-Texas province alone is almost beyond comprehension. Their future value, however, is not alone dependent upon their existence but is dependent upon how and for what benefits they are utilized. In them lie buried great potentialities prophetic of a much greater future wealth to the southern states wherein they abound.

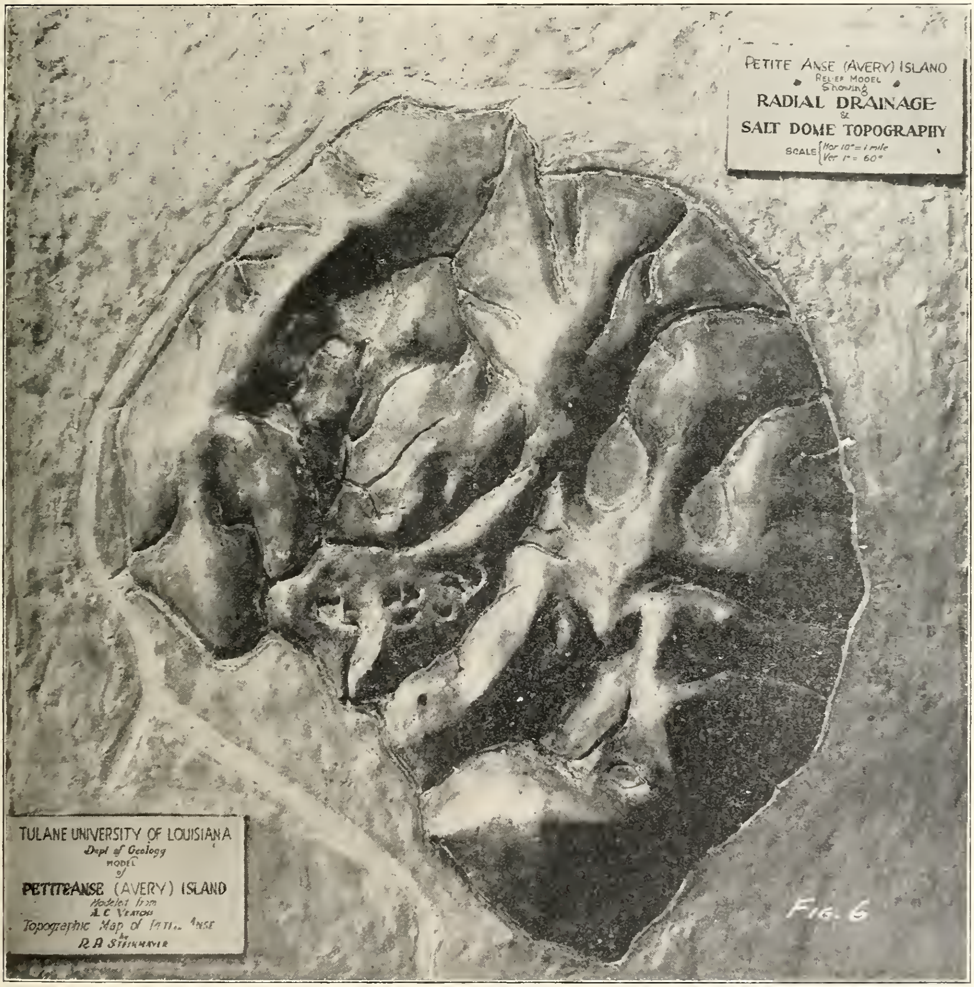


FIG. 6

HUNTING IN LOUISIANA

(Continued from page 15)

Little Lake Club, Barataria. (J. A. Stouse, Secretary-Treasurer, % Hibernia Securities Co., 226 Hibernia Bldg., New Orleans).
Manchac Hunting Club, Manchac. (A. G. Coats, Secretary, 822 Poydras St., New Orleans).
Mount Forest Shooting Club. (Dr. H. Cantwell, 531 Decatur St., New Orleans).
Netherlands Gun Club, Lake Catachouche. (J. Y. Baquie, 423 Carondelet St., New Orleans).
Orange-Cameron Land Co. Club, Cameron Parish. (G. W. Raborn, Manager, Orange, Texas).
Pass-a-Loutre Hunting Club. (Dept. of Conservation, New Orleans Court Bldg., New Orleans).
E. M. Percy, Plettenberg, "Ellerslie" (Private Club).
Pratt, E. L., Hunting Club, Lake Arthur. (E. L. Pratt, Manager, Lake Arthur).
Rigolets Club, Rigolets. (E. P. Hernandez, Canal Bank, Camp and Gravier Sts., New Orleans).
Ruddock Gun and Rod Club, Ruddock. (J. Krogsgard, Secretary, 2253 Cambronne St., New Orleans).
Savanne Nouvelle Hunting Club, Inc., Lake Charles. (T. L. Freeman, Secretary-Treasurer, Lake Charles).
Savoy, Cleophas A., Hunting Club, Church Point. (Cleophas A. Savoy, Church Point).
Will Savoy Hunting Club, Church Point. (Will Savoy, Owner, Church Point).
Seven Ponds Fishing and Hunting Club, Rigolets. (J. K. Bagley, 611 Julia St., New Orleans).
Star Hunting and Fishing Camps, Jennings. (C. W. Nutt, Jennings. Camps at both Lake Arthur and Jennings).
Stella Duck Club, Stella. (H. J. Ivans, Secretary, 2637 Jefferson Ave., New Orleans).
Venice Hunting Club, Venice. (Eugene DeArmas, President, Venice).

CHANGE IN BAG LIMIT

On December 31, 1929, President Hoover approved and proclaimed an amendment to the Federal regulations under the Migratory Bird Treaty Act, fixing a daily bag limit of fifteen (15) wild ducks and four (4) wild geese, instead of twenty-five wild ducks and eight wild geese, and also providing that not more than thirty (30) wild ducks and eight (8) wild geese may be possessed at any one time. This amendment was effective February 15, 1930.

PUBLIC SHOOTING GROUNDS

The Delta Duck Club, situated at Quarantine, La., is one of the most famous organizations of its kind in this country. John Dymond, Jr., President, can be reached at 1001 Maison Blanche Building (Phone Main 0180) and C. Sag Harris, Manager, is stationed at Quarantine (Phone 4 short rings, Pilot Town). Bus leaves every morning from Algiers and makes connection with boat.

The Pass a la Loutre Hunting Club, the only state-owned and operated club in the United States, with 66,000 acres of the finest hunting grounds, is well known through the United States and other countries. The Club is situated at the mouth of the Mississippi River between South Pass and Pass a la Loutre, equipped with Don Kidney duck boats, bedding and all club hunting necessities of the very best. It is operated by the Department of Conservation, New Orleans Court Building, Royal and Conti Streets.

The present administration has undertaken a number of improvements on the State's public shooting grounds and the club; some of which are blasting of new trails, cleaning of all ponds, and planting extensive waterfowl and shorebird feed, as well as renovating the club in its entirety.

The club is operated with no view to profit, but simply for the recreation of sportsmen who truly appreciate conservation and are disposed to pay a reasonable visiting and holiday fee to help maintain repairs and equipment.

WILD DUCK FOODS IN THE STATE

It became apparent that to properly study the status of the wild waterfowl of Louisiana an investigation should be made of the various natural duck foods of our State. The State, in almost every section of the lowland quarter, is rich in the three most important duck foods known, the wild rice millet, wild celery, and the various pondweeds, as well as a number of others of recognized value. Below is listed some of the prominent duck foods found in Louisiana with a note on each:

Wild Rice: Eaten in every stage of its growth by a number of ducks and geese; generally distributed throughout the State excepting the extreme north-western part of the State. Perhaps the most important of the natural duck foods.

Wild Celery: A food from which the great flocks of Canvasback Ducks obtain one-fourth of their food while here every winter. It is quite plentiful near the mouth of the Mississippi and on the various lakes. It is especially attractive to Canvasbacks, Redheads, Baldpates, the Scaups or Dos-gris, and Ruddy Ducks.

Delta Duck Potato: Known to hunters as "wild potato" or "wild onion" and the prized food of the Canvasback, the Mallards, the Pintail, and other large ducks. To be found throughout the State, but more especially at the delta of the Mississippi River.

Wapato: or "water nut" is found in the more northern portions of the State in abundance but is also found in the lowland country. The Teals, Mallards, Baldpates, Scaups, Geese, Spoonbills, Pintails, Redheads, and Canvasbacks feed on it.

Chufa: or "ground nuts," valuable food for many of the water-fowl. Is found generally throughout the State where it grows on dry land. It is also called "earth almond" and the plant is sometimes termed "nut grass" and "cache-cache."

Wild Millet: Almost as important in Louisiana as wild rice. Pintails, Teals, Mallards, and other shoal-water ducks are very fond of it, and the great flocks of geese that congregate there feed on the stems and leaves. It has a wide distribution throughout the State in the swamps and other rich, moist soils. This food is known in Southern Louisiana as "Riz de lane."

Banana Water Lily: A most important duck food in the lowlands of the State. Not only is it attractive to the shoal-water ducks but the diving ducks—Scaups, Ringnecks or Blackjacks, Canvasbacks, and Redheads, leave their deep water havens to feed upon it. It is found only along the coast.

Sago Pondweed: To be found throughout the wet places of the State and, while it is a freshwater plant, it thrives here splendidly in brackish and even salt water. It is known in many places as "eel grass" and in others as "foxtail grass." It forms a very large percentage of food of the important species of ducks that visit us each winter.

(Continued on page 28)

NOW IS A GOOD TIME FOR BUSINESS,
INDUSTRY AND INDIVIDUALS TO **PLAN AHEAD**

EXCEPTIONAL natural resources, outstanding industrial advantages, unusual agricultural and horticultural opportunities and progressive citizenship all have had part in bringing about a seventeen per cent increase in LOUISIANA'S population during the past decade. Analyzing this growth, one cannot but forecast a still greater expansion during the next ten years.

The United Gas System considers that the time is opportune to prepare for a still greater Louisiana of tomorrow.

This confidence is being expressed by an expansion program, now well under way, which calls for expenditure of many millions of dollars in drilling of new wells, construction of many miles of pipe lines and erection of compressor stations to supply additional homes and industries with an abundant supply of Natural Gas.

The United Gas System believes the growth and development of Louisiana is assured and is endeavoring to express its faith in a constructive way.

United Gas System

COMPLIMENTS OF

The Southern Kraft Corpn.

Manuacturers of

HIGH GRADE SULPHATE PULP, KRAFT PAPER, FOURDRINIER BOARD, CYLINDER LINER, AND MACHINE GLAZED PAPER.

MILLS AT—

Camden Mill, Camden, Ark.
Bastrop Mill, Bastrop, La.
Louisiana Mill, Bastrop, La.
Moss Point Mill, Moss Point, Miss.
Mobile Mill, Mobile, Ala.
Panama Mill, Panama City, Fla.

R. J. CULLEN, President

HUNTING IN LOUISIANA

(Continued from page 26)

Duck Grass: This pondweed, sometimes termed "Redhead Grass" because of its attractiveness to this species of duck, is another important duck food.

Musk Grasses: Frog spit, green slime, and other grasses of a group known as "Algae" are also valuable duck foods. Most of the musk grasses are to be found in fresh waters where they are attached to the bottoms. They are dull green in color.

Duckweeds: Green discs which cover shaded and quiet waters, being abundant in the recesses of the cypress swamps, and are relished by ducks of many species, especially Wood Ducks, Mallards, etc.

Frogbit: Found in shallow cypress-margined lakes throughout the State, the seeds of which are eagerly sought by ducks.

Thalia: A water plant, the seeds of which constitute excellent duck food.

Eel-Grass: The leaves of this plant quite closely resemble those of the wild celery; its seeds are eagerly sought by ducks.

Widgeon-Grass: Sometimes called in this State "Poule d'eau-grass" because of the liking the coot has for it. It is a brackish-water plant and can also be considered an important duck food.

Water-cress: Known locally as "Bois Blanc" and valuable as a waterfowl food.

All of the plants listed above are capable of being transplanted and propagated wherever water and other conditions are favorable, and should be a part of all "game farms" where waterfowl propagation is attempted.

PARISH CLOSE SEASON

Special parish close seasons have been established, by and with the permission of the Commissioner of Conservation, as provided by acts of legislature, in the following parishes:

Allen: The hunting of wild turkey and deer prohibited for three seasons, 1929-1930, 1930-31, and 1931-32; **squirrels** may be hunted **only** from November 1 to January 15.

Beauregard: The hunting of wild turkey and deer prohibited for three seasons, 1929-30, 1930-31, and 1931-32; **squirrels** may be hunted **only** from November 1 to January 15.

Bienville: The hunting of wild turkey and deer prohibited for three seasons, 1929-30, 1930-31, and 1931-32.

Calcasieu: The hunting of wild turkey and deer prohibited for three seasons, 1929-30, 1930-31, and 1931-32; **squirrels** may be hunted **only** from November 1 to January 15.

Catahoula: Prohibiting "camp hunting" for squirrels, rabbits, deer, and other game quadrupeds for more than 24 consecutive hours during the 1929-30, 1930-31, and 1931-32 seasons.

Concordia: Prohibiting "camp hunting" for more than 24 consecutive hours. Sheriff must be notified of intention of coming into parish to begin hunt.

DeSoto: The hunting of wild turkey and deer prohibited for three seasons, 1929-30, 1930-31, and 1931-32; **squirrels** may be hunted **only** from November 1 to January 15.

East Carroll: The hunting of wild deer and wild bear prohibited for three seasons, 1929-30, 1930-31, and 1931-32.

Jackson: Prohibiting the hunting of deer and wild turkey for the seasons 1929-30 and 1930-31.

Iberville: Prohibiting "camp hunting" for deer and squirrels for more than 48 consecutive hours during the 1929-30 season.

Madison: The hunting of deer, squirrels, bear, and wild turkeys prohibited for one year, 1929-30.

Pointe Coupee: Prohibiting "camp hunting" for deer and squirrels for more than 72 consecutive hours. Sheriff must be notified of intention of coming into parish to begin hunt.

Rapides: The hunting of wild turkey and deer prohibited for three seasons, 1929-30, 1930-31, and 1931-32; **squirrels** may be hunted **only** from October 1 to January 15.

Sabine: The hunting of wild turkey and deer prohibited for three seasons, 1929-30, 1930-31, and 1931-32; **squirrels** may be hunted **only** from November 1 to January 15.

St. Landry: Prohibiting "camp hunting" for deer and squirrels for more than 72 consecutive hours. Sheriff must be notified of intention of coming into parish to begin hunt.

St. Martin: Prohibiting "camp hunting" for deer or squirrels for more than 72 consecutive hours. Sheriff must be notified of intention of coming into parish to hunt.

Tensas: Hunting deer December 26 to January 15.

Vernon: The hunting of wild turkey and deer prohibited for three seasons, 1929-30, 1930-31, and 1931-32. **Squirrels** may be hunted **only** from November 1 to January 15. Prohibiting "camp hunting" for wild deer, squirrels, rabbits, and other game quadrupeds for more than 48 consecutive hours during the 1929-30 season.

West Baton Rouge: Prohibiting "camp hunting" for deer and squirrels for more than 48 consecutive hours. Sheriff must be notified of intention of coming into parish to begin hunt.

State law permits hunting every day of open season, including Sundays.

ENCOURAGING OWNERS OF LAND TO GROW FORESTS

(Continued from page 13)

Federal income tax laws require that expenditures for planting and improving forest lands must be accounted for as capital investment. These charges are not deductible as annual expense against annual income, but forest crop expenditures must wait for deductions until the crop is cut. The interest cost of advancing money for forest crop production has no standing with Federal income tax authorities. Forest crop producers are not even allowed to count interest charges as operating expense.

Wisconsin's income tax law cuts this entire tangle of complication by allowing expenditures for planting, protecting, and improving forest crops as operating expenses. This is a much wiser policy than the Federal insistence upon penalizing the practice of forestry. If, as we claim, forestry should be an integral part of the business of primary woodworking, then certainly the Federal law should be so amended that such industries may deduct their annual forest operating expense from annual income just as any other nonavoidable expense is deducted.

This is a matter of plain justice, but even were this not true, even if such an amendment were discriminatory in favor of woodworking industries, we still would have grounds upon which to demand such relief.

The forest resources of the Lake States, the Northwest, and the South, are not the resources of the states alone; they are the resources of the Nation, important to the economic welfare, health and happiness of all the people of America, a nation carved out of a forest wilderness and which cannot long endure and prosper if the millions of acres of cut-over lands are to be further increased.

Stovall Drilling Company, Inc.

Can furnish any quantity of washed river gravel and sand on short notice.

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HIGH GRADE MILL WORRK
BUILD A HOME
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WINDOW GLASS, PLATE GLASS, ART GLASS, SASH CORDS, SASH WEIGHTS, ROOFING, ALL KINDS OF BUILDING MATERIALS

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H·R·Hayes Lumber Co·
WEST MONROE, LOUISIANA

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Ideal White Pine Window Frames
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The Old Reliable Raw Fur House

OVER A QUARTER CENTURY IN

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Lee-Rogers Chevrolet Company, Inc.

S. J. ROGERS, Manager

SALES CHEVROLET SERVICE

FOR ECONOMICAL TRANSPORTATION

MONROE, LOUISIANA

GREATER OUTPUT OF ROAD OIL SHOWN IN REVIEW OF REFINERIES' PRODUCTION

(Continued from page 5)

These are related to the asphalts and, as the names imply, are used as protective coatings.

The other products included special waxes, such as floor wax; special lubricants; such as household oil; greases and transmission oil, candymakers' oil, wax tailings, and acid oil recovered from acid sludge and probably used as a fuel.

The products so far covered represent the most important of the miscellaneous oils from a quantitative standpoint. There are many other petroleum products made but these were either produced outside of refineries or were reported to the Bureau under the general heading of "specialties."

REPORT OF DIVISION OF FISHERIES

(Continued from page 10)

besides affording easy ingress and egress to the lakes and will make the Preserve a great attraction not only to residents of Louisiana but also to those of neighboring states.

BUFFALO FISH HATCHERY

During 1930, the Department has established a buffalo fish hatchery at Lake Des Allemands, which is a natural breeding ground for Buffalo fish. Heretofore, there was insufficient fresh water in this section necessary for the spawning of buffalo fish; and, due to this condition, the Department has had a syphon placed on the Mississippi River at Edgard, where, by syphoning fresh water into this Lake, the Department feels certain the largest Buffalo fish breeding grounds in the State will be developed. The reason for believing this is, that during high water from the Mississippi River, Buffalo fish have come into this lake and have spawned very prolifically; but, during years when fresh water could not get into this like, there were practically no Buffalo fish spawned in that section. This experiment is being carefully watched by the Fisheries Division in order to secure accurate data on this work.

RESCUE WORK

About the middle of February, 1930, Supervisor B. F. Bradford, assisted by the late P. A. Cloutier, Agent of the Department, was detailed to rescue work which was being carried on by this Department in the vicinity of Caddo, Bossier, DeSoto, Red River, Natchitoches, Grant and Rapides Parishes, during the fall of Red River, when millions of game fish were saved. About 500,000 fish were put into Cross Lake and equally as many distributed and planted in private ponds in that vicinity. These figures do not take into consideration the amount seined nor the Fresh Water Fish taken in that neighborhood. About one million game fish were taken from Bayou Robert and planted in Bayou Rapides and Bayou Boeuf in the Parish of Rapides. In Natchitoches Parish about 500,000 game fish were planted into Cane River Lake. In Avoyelles Parish there were about three million game fish saved and planted into Bayou Leaunoire and Boggy Bayou. As a result of this activity, practically every body of water in the above vicinity received game fish during that time.

WATER POLLUTION

Various forms of pollution of streams and lakes in the State of Louisiana came to the attention of this Division, and in every case investigations were made with a view of ascertaining the cause.

The matter of pollution of Tangipahoa River was investigated by this Division. Several conferences were held with the gravel pit owners, which, in a measure, have helped to improve conditions, and the Department is still trying to devise some means of eliminating the pollution of streams caused by gravel washing.

Oil pollution of streams in the neighborhood of Destrehan has also been investigated; and, from late inspections in that vicinity, this Division finds that necessary steps have been taken to prevent the further destruction of fish in the bays and bayous of this section.

In Monroe, this Division, with the cooperation of the State Board of Health, took up the question of pollution of streams from waste oils coming from oil fields located in the State of Arkansas, and endeavored to secure the cooperation of the Conservation Commission of Arkansas to eliminate this great handicap to fish life in the Parish of Ouachita. Efforts are still being made in this direction, as the Department intends sponsoring a Bill to have the Federal Government correct the pollution of streams by adjoining States.

Considerable trouble is being experienced by the Department from paper mills located in the State, due to waste matter flowing into streams. However, the Department feels quite sure that in the very near future this waste from paper mills which is so destructive to fish life in the bays and bayous of the State, will be corrected by a method now in contemplation, and expects very shortly to take this work up through the Department's Research Bureau; and the fish life of the State of Louisiana will then receive a greater measure of protection along scientific lines than it has heretofore enjoyed.

SEA FOODS YIELD IODINE ESSENTIAL TO BALANCED DIET

(Continued from page 11)

Albacore, canned	790
Salmon, chinook, canned	780
Salmon, chinook, mild cured	720
Haddock, salt	680
Mackerel, common, salt	660
Mullet, salt	560
Tuna, bluefin, canned	390

Not only has scientific investigation demonstrated marine products to be excellent sources of iodine for a balanced diet, both for man and beast, but nutrition studies have proven them to be exceedingly valuable for their content of other minerals, proteins, and vitamins.

---

(1) The table on iodine content of marine products is taken from Bureau of Fisheries Document 979 entitled, "Iodine Content of Preserved Sea Foods."

MRS. H. R. SPEED, President T. O. BANCROFT, Vice-President M. W. SYKES, Secretary-Treasurer

H. R. Speed Insurance Agency, Inc.

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MONROE, LOUIISIANA

ESTABLISHED 1899 INCORPORATED 1922

General Insurance written, including Fidelity and Surety Bonds on Public and Private construction. Workmen's Compensation. Agents and Attorneys for Union Indemnity Company of New Orleans.

Kellogg Lumber Company, Inc.

MONROE, LOUISIANA

MANUFACTURERS - - - - EXPORTERS

HARDWOOD LUMBER - - - - - - - - OAK FLOORING

Trapping Limited in Massachusetts

The new trapping law enacted by the voters at the recent general election will become effective on Dec. 4, according to a statement issued by Director William C. Adams, of the State Division of Fisheries and Game.

An explanation of the new law was contained in the statement and follows in full text:

Under the terms of the new law no trap may be lawfully used which is not designed to kill the animal at once or take it alive unhurt.

This law abolishes the use of the present steel trap, except in such cases where these traps are set in locations whereby the animal will immediately drown in deep water upon being caught in the trap and with the further exception that the present traps may continue in use within 50 yards of any building or cultivated plot of land for the purpose of trapping vermin which is detrimental to the proper use of the land or buildings.

The burden of proof will rest upon the person using any trap to show that it is a device which will, as a matter of fact, comply with the terms of this new law.

All present laws remain in full force and effect such as the laws prohibiting the use of poisons, snares, jaw traps having a spread of more than six inches or stop-thief or choke traps with an opening of more than 6 inches.

Two Louisiana Oil Fields Extended

Extensions in two North Louisiana oil producing fields and a new oil well and a new gasser in Arkansas together with interesting developments in Zwolle which indicate a widening of that field formed the outstanding developments in the Shreveport oil territory during the last month.

Standard Oil Company's Dowling Brothers B-1, Section 32-14-13, three-fourths of a mile north of production in the Holly field of De Soto parish, Louisiana, was completed flowing 200 barrels of oil along with approximately 20,000,000 cubic feet of gas at 2830 feet.

T. G. Shaw has completed his Wilkinson No. 1, SE SE Section 4-12-10, near Coushatta, at 2840 feet flowing 50 barrels of oil daily.

While Zwolle recorded only one 75-barrel pumper in the completions list, this being Pelican Natural Gas Company's No. 6 Louisiana Long Leaf in the southeast extension of the east field in Section 4-7-11, two other wells showing indicated the spreading out in two directions of the recently opened mile and a half south extension of the Zwolle east field. These two wells, both of which are making oil, are R. L. Gay's Sabine A-1, Section 1-7-12, and Towery Drilling Company's Sabine No. 1 Section 12-7-12.

The Urbana district of Union county, Arkansas, where deepest oil yield in that state is obtained, came through with a 300-barrel flowing well in Marine Oil Company's W. B. Thompson A-5, Section 10-18-13, making oil from 3532 feet. The Arkansas-Louisiana Pipe Line Company added another good dry gasser in Johnson county by completing Kelly No. 1, Section 14-10-24 at 3134 feet as a 21,000,000-foot gasser.

Six producers added 685 of new yield during the last week as compared to three producers with a combined initial of 760 barrels the preceding seven-day period. During the last week there were also four gassers and seven failures as compared to five gassers and five failures the preceding week.

Daily average oil production dropped 629 barrels during the last week to a level of 92,474 barrels. North Louisiana fell off 1072 barrels to 42,072 barrels which was partly overcome by a gain of 443 barrels in Arkansas which rose to 50,402 barrels.

Lake Bed Titles at Issue in Suit

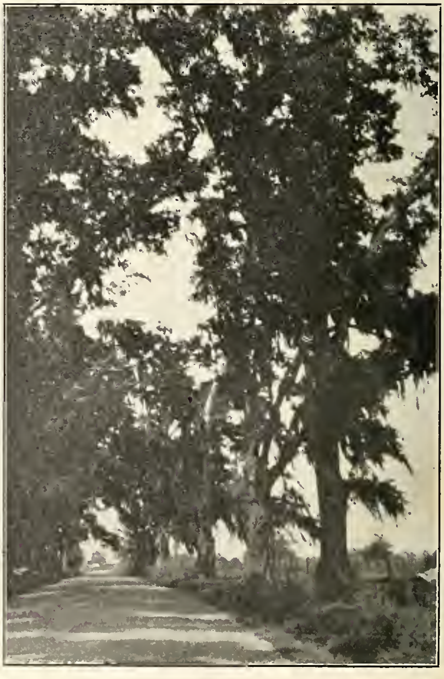
The Supreme Court of the United States, on Dec. 1, granted the Department of Justice leave to file a bill of complaint in an original action before the court against the State of Oregon to determine title to the beds of the Malheur, Harney, and Mud lakes, in Harney Country, Oreg.

The Department claims that these lakes are non-navigable and, since the United States owned the lake-bed land at the time of Oregon's admission to the Union, its title to the land should be quieted. The State of Oregon has claimed title to the land on the ground that the lakes are navigable.

A determination that ownership in the United States, according to the bill of complaint, is necessary to the proper development and administration of the Lake Malheur Reservation, a preserve and breeding ground for native birds, which includes the contested area.

FLORIDA STARTS GAME FARM

The department of game and fresh-water fish of Florida recently established a game breeding farm. A start has been made with pheasants, wild turkeys and quail in co-operation with the state prison farm.



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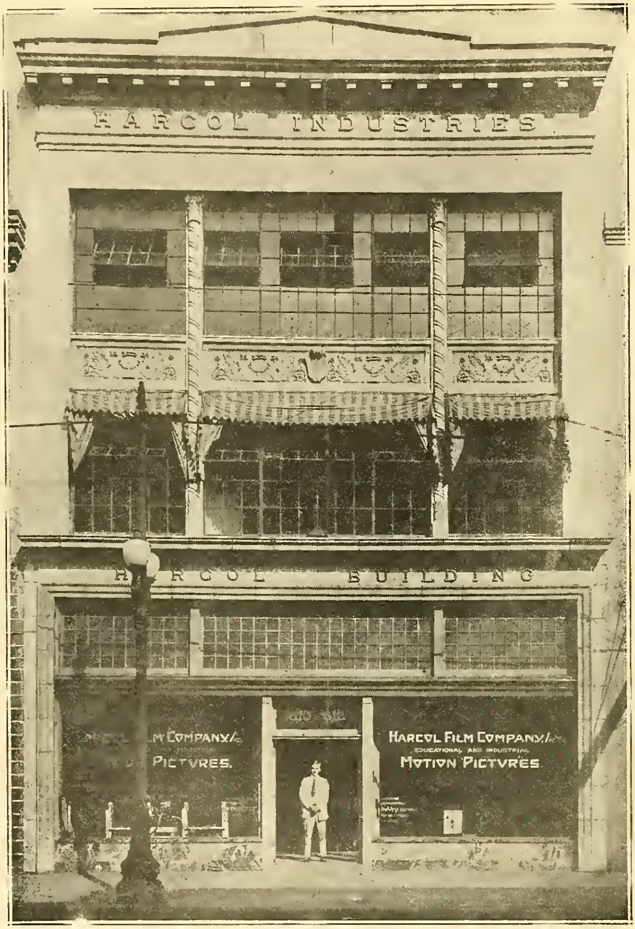

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